
KB Series KB30, KB50, KB100 Hot Melt Units

Product Manual

Manual Number: 19600-159



1-800-642-7876

KB Series KB30, KB50, KB100 Hot Melt Units

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Revision: A

Date: 04/09/09

**For Sales and Service Centers in your area,
Call 1-800-642-7876 or
Visit our website at www.astropackaging.com**

NOTE CONCERNING ILLUSTRATIONS: All illustrations within this product manual should be considered as general representations of the parts or assemblies depicted, and should not serve as mechanical drawings, nor be consulted for scope or scale. They are for reference only.

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1 Safety Precautions for Hot Melt Applicator Equipment

This manual contains important safety information and instructions. Failure to comply with these instructions can result in death, injury or permanent damage to this equipment and will void the warranty.

1.1 Intended Use

This equipment is designed for use with standard adhesive and sealant materials with flash points above 232 °C (450 °F). Use of flammable material or material not compatible with the specifications of this equipment can cause injury to operator and damage to equipment.

The manufacturer has designed this equipment for safe operation. Specified models are in compliance with EN 60204-1:1997. However, heated thermoplastics and other hot melt materials are dangerous and care must be exercised to ensure operational safety. Handling must be in accordance with hot melt manufacturer specifications. Never exceed the maximum application temperature recommended by the adhesive manufacturer.

Dispose of hot melt properly. Refer to the Materials Safety Data Sheet (MSDS) of the hot melt for recommended disposal methods.

1.2 Personal Safety



Wear Safety Goggles



**Wear Heat-Resistant
Safety Gloves**



Wear Protective Clothing

Wear the following protection when working on or around this equipment:

Always wear heat resistant gloves rated to 205 °C (400 °F) and allow all system temperatures to stabilize below 193 °C (380 °F) before servicing. Properly ventilate equipment according to MSDS of equipment.

Trained operators and service technicians should be aware of exposed surfaces of the unit that cannot be practically safeguarded. These exposed surfaces may be hot and take time to cool after the unit has been operating.

Keep parts of the body away from rotating parts. Do not wear loose articles of clothing when operating or servicing units with rotating parts. Remove wristwatches, rings, necklaces, or other jewelry and cover or pin up long hair before performing any work on or with the unit.

Trained operators may perform only external equipment adjustments. Trained service technicians must perform internal adjustments and service.

1.3 Electrical Safety

Determine voltage of this equipment before installation and confirm compatibility with available power. Equipment must be connected to a properly grounded circuit and installed in accordance with all applicable electrical codes. Ground fault protection must be provided in supply circuitry at site installation.

Models designed to EN60204-1: 1997 require power cords be approved to a harmonized (HAR) standard and rated for 70 °C (158 °F). A HAR approved Type B plug and strain relief for power cord is required to meet standard IEC 309. Power conducting wires must be nominal 5.3 mm² (10 AWG) maximum and nominal 2.1 mm² (14 AWG) minimum.

1.4 Emergency Power Disconnect

In the event of a malfunction, turn off power to the equipment at the power off switch and remove source power to the system at the nearest main disconnect.

1.5 Follow Directions

Read the product manual thoroughly before installation, operation or maintenance. Failure to do so can result in a serious accident or equipment malfunction. **The manufacturer will not be held liable for injuries or damage caused by misuse of this equipment.**

1.6 Safety Symbols and Signal Words

The following safety symbols and signal words are used throughout the manual and on the product to alert the reader and operator to personal safety hazards or to identify conditions that may result in equipment or property damage.



DANGER: Indicates a hazard, which, if not avoided, will result in serious injury, including death, or equipment and property damage.



WARNING: Indicates a hazard, which, if not avoided, can result in serious injury, or equipment and property damage.



CAUTION: Indicates a hazard, which, if not avoided, can result in minor injury, or equipment and property damage.

Specific Symbols and Signal Words



DANGER: High Voltage. Can cause serious injury, including death. Disconnect electrical power at external source before servicing



WARNING: Hot Surface. Can cause serious injury and burns. Wear heat resistant clothing, gloves and safety goggles.



WARNING: Disconnect electrical power at external source. Failure to do so can cause electrical shock.



WARNING: High Pressure. System contents under pressure. Can cause serious injury and burns or equipment and property damage. Relieve pressure before servicing.

Other Product Symbols



On



Off



Ground



Protective Earth



Tank



Heated Hose



Applicator



Pump Motor



Set Temp



Standby Temp



Overtemp



Adhesive Flow



Tank Heater



Alarm



Actual Temp



Source Power



Valve Group



Manual Task



Input



Output

The manufacturer reserves the right to make design changes for product improvement. This manual may not reflect all details of these improvements.

2 Introduction

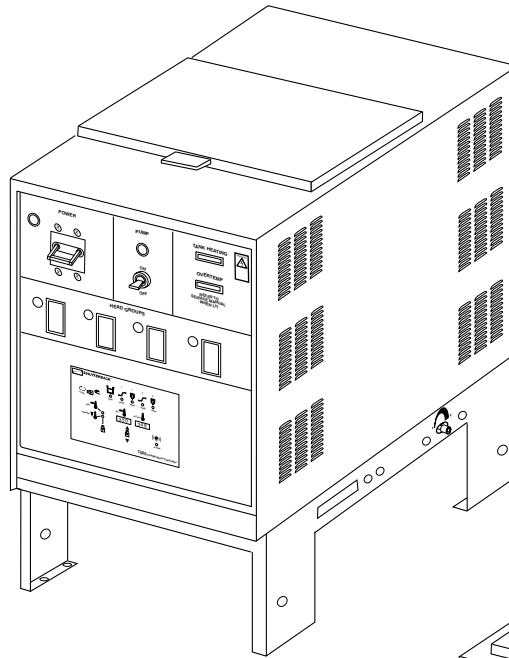
2.1 Description

The KB30, KB50 and KB100 Series of heavy-duty melt units supplies hot melt adhesive in a wide range of applications. The tank capacity of these melt units is 30, 50 and 100 pounds. A wide range of options affords choice of pump and motor size, thermostat or solid-state temperature controllers, and head firing or gun/hose configuration.

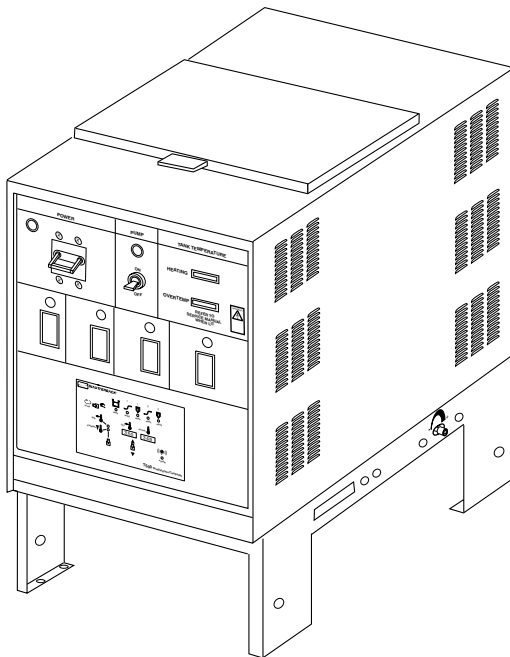
All units operate on single-phase AC power with models available for 230 VAC power sources. These units operate up to five (KB30) or six (KB50 and KB100) automatic or two manual applicators and are supported by a complete range of pattern control accessories. The basic melt unit includes a melt grid and filter block assembly. Pump filter must be ordered separately.

2.2 Features

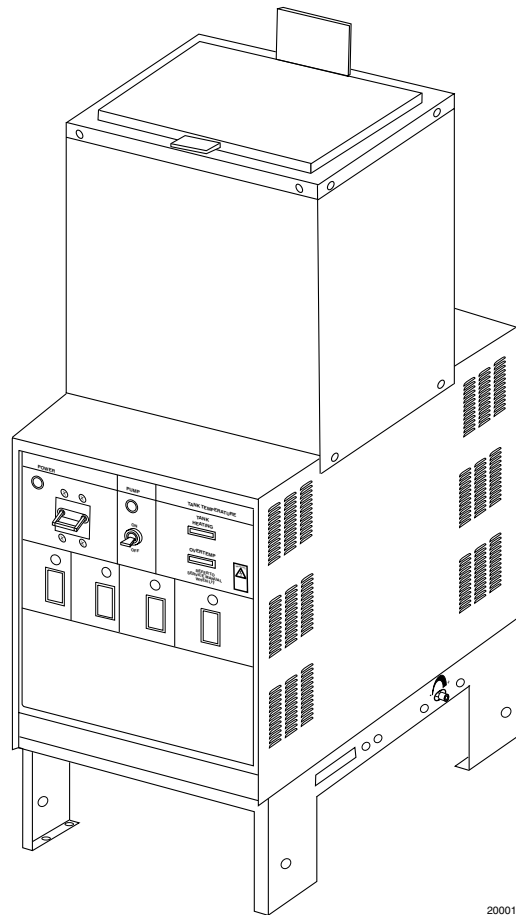
- ☐ All-electric models operate from 230 VAC power source.
- ☐ No compressed air required.
- ☐ 1 to 2 hoses – handguns. 1 to 5 (KB30) or 6 (KB50 and KB100) hoses – automatic applicators.
- ☐ Temperature control options range from thermostat to microprocessor.
- ☐ High torque, high rpm motors for low maintenance and long life.
- ☐ Reliable, smooth output gear pumps to handle a wide range of materials.
- ☐ Teflon-lined melt tank reduces adhesive char and minimizes degradation buildup.
- ☐ Finned melt grid in tank bottom increases melt rate for fast warmup and continuous melting.
- ☐ High performance pump rates up to 395 lb/hr (179 kg/hr).
- ☐ Supported by high performance pattern controllers, head drivers, and automatic flow controllers.
- ☐ System power circuit breaker protects the entire system from overload.
- ☐ Tank-mounted overtemperature switch backs up the tank thermostat in case of a tank thermostat failure.
- ☐ Circuit breaker protects the pump motor by opening the pump motor circuit during a stall or an overload condition.
- ☐ Melt tank is also equipped with a pump warm-up switch, for the protection of the pump-drive mechanism.



KB30



KB50



KB100

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3 Specifications

3.1 Electrical

Input voltage -----	230 VAC single phase
Frequency-----	50/60 Hz
Power Required -----	KB30: 3000 W
(Hoses not included) -----	KB50: 4200 W
-----	KB100: 4700 W
Additional System Wattage -----	KB30/50/100: 25-30 W/ft per Hose
-----	KB30/50/100: 200–600 W/Applicator
Circuit Breaker Rating -----	KB30: 30 A @ 230 VAC
-----	KB50/100: 40 A @ 230 VAC
Parent machine interface circuit	

3.2 Physical

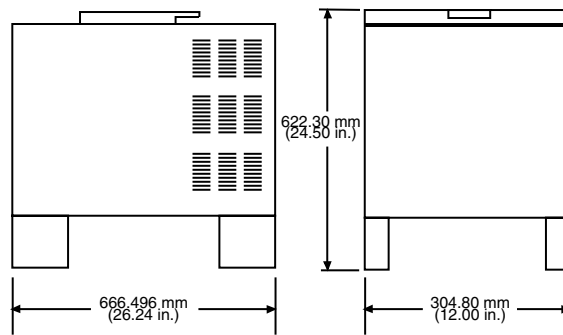
System Type-----	Bulk Tank
Operating Air-----	None
Pump Type -----	Positive Displacement Gear Pump
Pump-Drive Mechanism-----	All-Electric Motor
Pump Pressure Regulation -----	Pump-Mounted Flow Control Valve
Tank Capacity-----	30 lb (13.6 kg)
-----	50 lb (22.7 kg)
-----	100 lb (45.4 kg)
Hose Capacity-----	All: 1–2 Handgun Hoses
-----	KB30: 1–5 Automatic Head Hoses
-----	KB50/100: 1–6 Automatic Head Hoses
Weight (full)-----	KB30: 95 lb (43.1 kg)
-----	KB50: 110 lb (50 kg)
-----	KB100: 185 lb (83.9 kg)

3.3 Performance

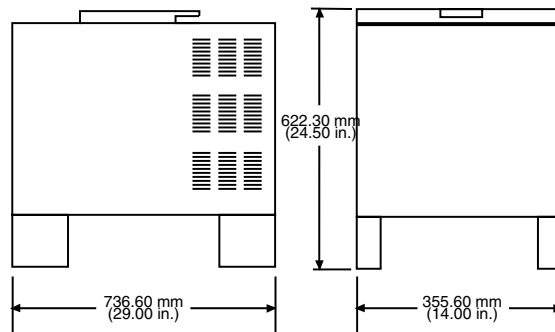
Warm-up Time-----	30–45 minutes
Maximum Melt Rate*-----	KB30: 40 lb/hr (18.1 kg/hr)
-----	KB50/100: 60 lb/hr (27.2 kg/hr)
Adhesive Viscosity-----	Maximum 70,000 centipoise

* Maximum melt rates vary with different adhesive types.

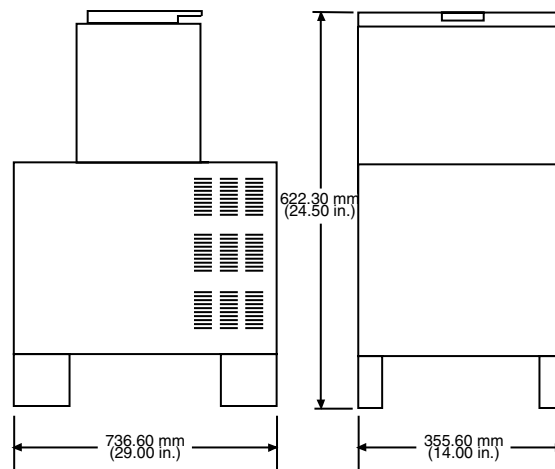
3.4 Dimensions



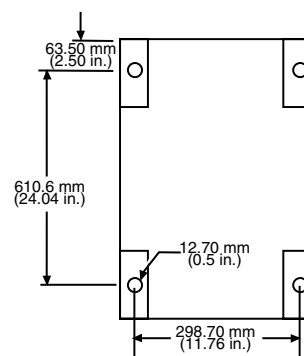
KB30



KB50



KB100



ALL

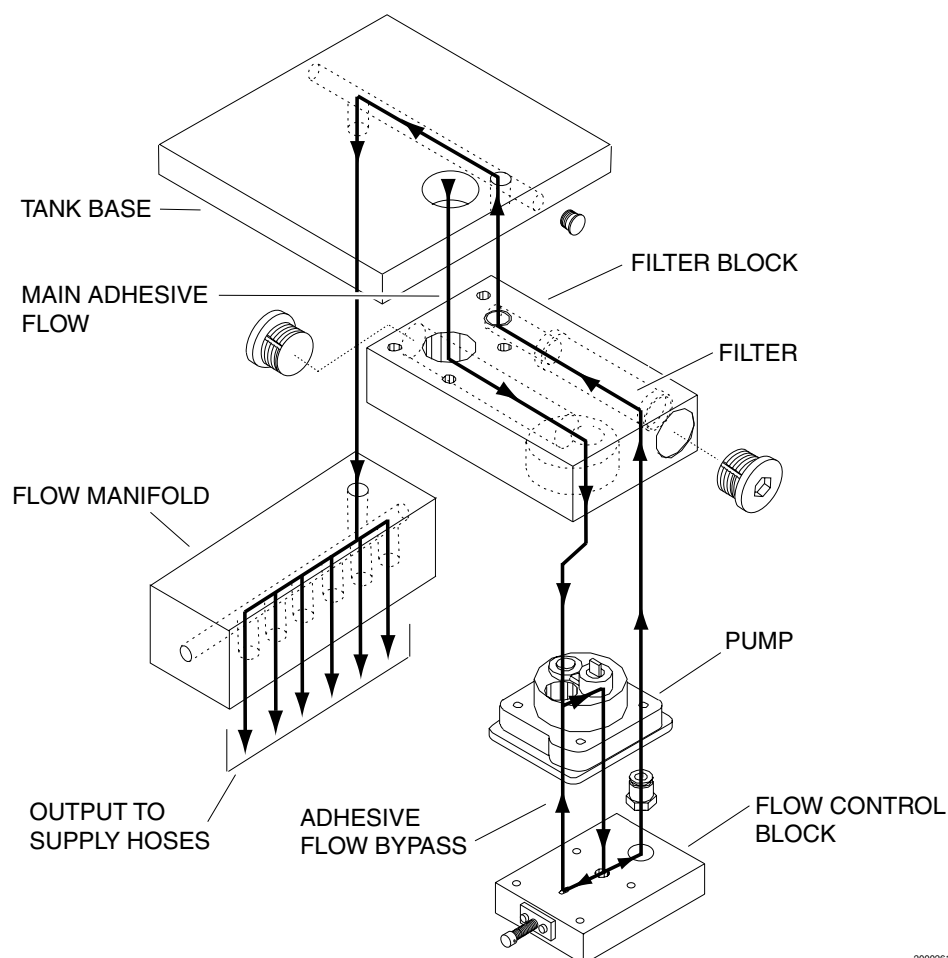
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3.5 Operating Pressure and Adhesive Flow

Pump and Motor	Flow Rate at Typical Pressure	Operating Pressure Range
V4-450 Pump 86/72 rpm	250 psi (17.2 bar) 80/72* lb/hr (36.3/32.7 kg/hr)	100–350 psi (6.9–24.1 bar)
V4-675 Pump 86/72 rpm	250 psi (17.2 bar) 110/90 lb/hr (49.9/40.0 kg/hr)	100–300 psi (6.9–20.7 bar)
V2-545 Pump 86/72 rpm 170/140 rpm	400 psi (27.6 bar) 95/83 lb/hr (43.1/37.6 kg/hr) 197/164 lb/hr (89.7/74.4 kg/hr)	250–600 psi** (17.2–41.4 bar)
V3-675 Pump 86/72 rpm 170/140 rpm	250 psi (17.2 bar) 86/70 lb/hr (39/31.8 kg/hr) 150/140 lb/hr (68/63.5 kg/hr)	300–800 psi (20.7–55.2 bar)

NOTE: Estimated flow rates are based on common EVA packaging grade adhesive. *For paired values: left value is at 60 Hz/right value is at 50 Hz. **A 100-300 psi (6.9-20.7 bar) V2-545 Pump is available.

3.6 Adhesive Flow Path



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3.7 Temperature Controller Options

Name	Type	Capacity*	Accuracy	Features
Thermostat	bimetallic capillary sensor	tank only 1 hose	± 10 °F (8 °C) ± 15 °F (8 °C)	no readout no readout
T500	microprocessor	5 zones	± 1 °F (1 °C)	digital readout, run ready, each zone standby setting, visual alarm, auto standby, auto shutoff
T750	microprocessor	9 zones	± 1 °F (1 °C)	same as T500
T1000	microprocessor	15 zones	± 1 °F (1 °C)	digital readout, run ready, each zone standby setting, visual alarm, auto standby, auto shutoff, 7-day clock, remote standby

NOTE: *A temperature zone is the heating element (heating circuit) in a tank, hose, or applicator head.

4 Installation

4.1 Shipping and Handling

The KB melt units may be shipped with the supply hoses and the applicator heads or handguns already connected. The melt units are either shipped in a corrugated box or bolted to a wooden pallet.

The supply hoses are coiled around the melt unit and the applicator heads or handguns wrapped in packaging envelopes. A 1/4-inch hex wrench for the flow control valve, and a binder containing system manuals and warranty information are shipped with the units.

4.2 Supporting the Melt Unit

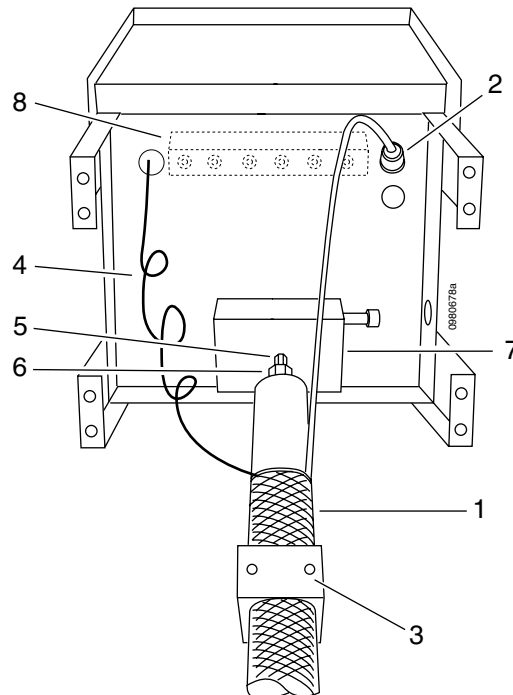
Position the melt unit so that servicing is convenient and the control panel is easily accessible. Using the base mounting holes, bolt the melt unit down to the mounting surface. The mounting surface must be level and flat to prevent warping of the melt unit, and misalignment of the pump and motor shaft. The melt unit must be properly bolted down to prevent accidental upset and possible injury.

4.3 Component Installation

For safe and proper installation and to avoid accidental pressurization, make certain that all controls are in the Off position. Read section 5.1: Controls and Indicators before installing any components.

4.3.1 Hot Melt supply hoses - Important Points

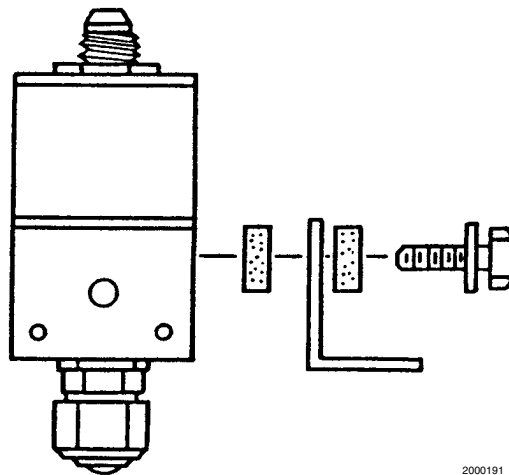
1. To prevent damage to the hot melt supply hose, the hose should not be flexed when cold. These hoses have a minimum bend radius of eight inches when hot. Further flexure will cause permanent damage.
2. Hot melt fittings must be heated before loosening or tightening or damage may result. New and clean supply hose fittings do not need to be heated.
3. To install the supply hoses on the melt unit, raise or tilt the unit far enough backwards so that the bottom is accessible but not as far so adhesive spills out of the melt tank. Do not turn melt unit upside down.
 - a. Insert thermostat bulb entirely into brass tube of hose [1]. Take care not to kink the capillary tube [4] or not to bend the hose at a sharp angle. (Capillary controlled hoses only)
 - b. Loosely connect JIC swivel fitting [6] on hose to the right angle fitting [5] on the hose connection flow control [7] or manifold [8]. Make sure the brass tube with thermostat bulb is oriented at either three or nine o'clock for optimal temperature control. (Capillary controlled hoses only)
 - c. Fasten hose support block [3] to chassis.
 - d. Tighten JIC swivel fittings.
 - e. Plug in hose electrical connector(s) [2].
 - f. Tuck capillary tubing and electrical connector underneath the unit. (Capillary controlled hoses only)
 - g. Position and support hose as it is used in service.



-
4. Failure to properly support the supply hose will result in premature failure. Support the supply hose to prevent excessive flexure. Do not support the supply hose in a way that may add to the thermal insulation or overheating will result. Do not add to the hose support block.
 5. Always check the calibration of the supply hose's temperature after installing a new or different hose. Hoses can vary and each supply hose can produce different temperature results. (Refer to the supply hose manual for this procedure.)

4.3.2 Supporting Applicator Heads

Applicator heads, such as the Astro Packaging E100, are mounted to appropriate brackets using supplied hardware. For the head to reach operating temperature, insulation spacers must be used between the applicator head and the mounting bracket, and between the mounting bracket and mounting bolt (see illustration below). The applicator head should be mounted as close as possible to the application surface. Refer to the applicator head manual for detailed mounting and operating instructions.

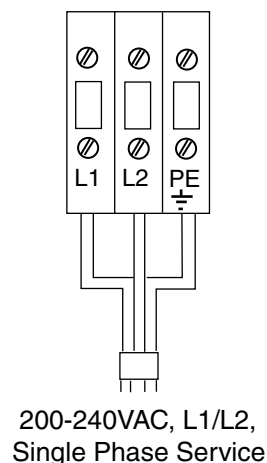
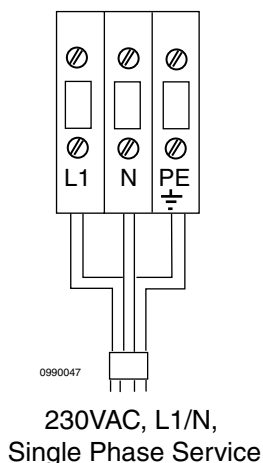


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4.4 Electrical Circuits and Wiring

The KB melt units use standard single-phase 230 volt power sources, each with earth ground for safety. An identification plate is attached to each melt unit on the outside of the rear door of the tank housing. This plate specifies the exact voltage and maximum current of the melt unit and the frequency of the pump motor. Pump motor voltage, frequency and current, are specified on the motor data plate located on the motor.

For safe and proper installation, it is important to refer to the identification plate before applying electrical power to the melt unit. (Also, refer to section 3 for further melt unit electrical specifications).





CAUTION: Always check the wiring configuration in the electrical panel terminal blocks before and after making electrical connections. Verify that the jumpers are in their correct locations to avoid possible damage to the system!

4.4.1 Automatic Heads

The appropriate power-in head program wires and jumpers must be configured or installed in the terminal block provided. A detailed electrical schematic is shipped with the melt units. Astro Packaging recommends the use of 3/8" liquid tight conduit and fittings when routing wires to the electrical terminal blocks. 7/8" diameter holes in the chassis are provided for these installations. Close the front panel after completing electrical wiring.

4.4.2 Head Control Circuit

The head control circuit allows electrical valving signals to be channeled to the correct applicator head(s). This circuit is enabled and disabled by the HAT switches (user-added option only) located on the front panel. A KB30 with the maximum five head/hose combinations or KB50/KB100 with the maximum six head/hose combinations and three HAT switches can be configured so that the three HAT switches control different combinations of the five or six heads. The HAT switches are wired in two different modes: Internally wired HAT switches utilize the melt unit's voltage as a power source; externally wired HAT switches use a separate power source for systems that use external control devices. Head control circuits must be isolated from the melt unit power when using Astro Packaging DC Head Drivers or damage will result to the timing device.

These wiring configurations are illustrated in the electrical schematic that ships with the melt units.

4.4.3 Parent Machine Lockout Circuit

Two variations of the parent machine lockout circuit are available for the KB melt units:

- The first variation allows the parent machine to lock out the melt unit by controlling the melt unit's pump motor. A pair of contacts, furnished by the parent machine, is connected into the melt unit between terminal block locations TA-9 and TA-9a. Jumper #3 must be removed. After the contacts have been connected and the jumper removed, the melt unit's pump motor is only operational when the parent machine is in use.
- The second variation must be ordered as a kit from Astro Packaging. This variation locks out the parent machine until the melt unit has reached an acceptable operating temperature. The kit contains a thermostat that is mounted to the tank's base plate. The two leads from the thermostat must be connected between two unused terminals on the terminal block. The unused terminals should then be labeled by the user to TA-30 and TA-31 for reference. The kit order number for a thermostat rated at 250 °F is 79068-265. For other temperature options please contact an Astro Packaging sales representative.

4.5 Customer Hookups

This list addresses most of the available options and configurations. Always refer to the schematic that comes with your individual machine.

4.5.1 Valve groups (also known as Head groups)

Any melt unit can have up to 6 different valve groups. See your schematic to determine how individual coil sets are wired within your machine.

Valve Group	Terminals
1	4 & 15A
2	4A & 15B
3	7 & 15C
4	7B & 15E
5	6 & 15F
6	6C & 15G

4.5.2 Other Hookups

As some of these terminations are optional, they may not be present in your machine. For additional hookups consult the appropriate accessory manual and wiring diagram that came with your machine.

Feature/Option	Terminals	Notes
Run-Ready	60A & 61A	Dry contact closure to signal parent machine that melt unit is at operating temperature.
Auto Standby	60B (+) & 61B (-)	Input from head driver input (nominal 12 VDC) to reset count-down clock.
Standby-to-Run	60C & 61C	Requires a contact closure to change state.
Power On Indicator	60E & 61E	Output to light stack
Standby-to-Run	60F & 61F	Check this against the other standby to run. One of these should be run-to-standby.
Audible Alarm	60G & 61G	
Low Level Indicator	78 & 79	Dry contact closure to signal parent machine that hot melt level has dropped to predetermined setting.
Tachometer	34 (+) & 35 (-)	Terminal point to obtain multiple use of tachometer analog signal.
Run-Ready	30A	Light stack input
Standby	30B	Light stack input
Alarm	30C	Light stack input
Low Level	30E	Light stack input

5 Operation

5.1 Controls and Indicators

NOTE: Bimetallic only – refer to temperature controller manual for solid-state temperature controllers.

[1] System-Power-Switch/Circuit-Breaker and Indicator Light

The system power switch is also a magnetic type breaker designed to open the circuit at currents exceeding 30 amps (KB30) or 40 amps (KB50/100) at 230 VAC, or in response to a temperature-based error with the appropriate controller. The system power indicator light above the breaker illuminates when the system power switch is in the On position.

[2] Pump motor On/OFF Switch and Indicator Light

This switch allows the user to switch Off the pump motor during system warm-up or system maintenance. A circuit breaker (pump warmup switch) in the pump motor circuit protects the motor during a stall or an overload condition. The pump motor indicator light above the switch will illuminate indicating the pump warmup switch has closed and the melt unit is ready for operation.

[3] Tank Temperature Meter (Bimetallic only)

The tank temperature meter indicates the operating temperature of the melt tank. It does not indicate the temperature of the supply hose. (The hose temperature adjustment located behind the front panel indicates the temperature of the supply hose.)

[4] Tank Heating Indicator Light

This light illuminates when tank heaters are powered. It also assists the user when making temperature adjustments to the tank temperature controller.

[5] Overtemperature Indicator Light

This is a protection feature. All KB Series melt units are equipped with an overtemperature shutoff. If the melt tank's temperature exceeds the rating of the overtemperature thermostat, the overtemperature indicator light will illuminate and the overtemperature thermostat will regulate the melt unit's temperature. The temperature rating of the overtemperature thermostat is below the failure temperature of the Viton o-rings in the melt unit and the Teflon lining in the supply hoses. Should an overtemperature condition occur, the tank temperature controller should be replaced if it has failed.

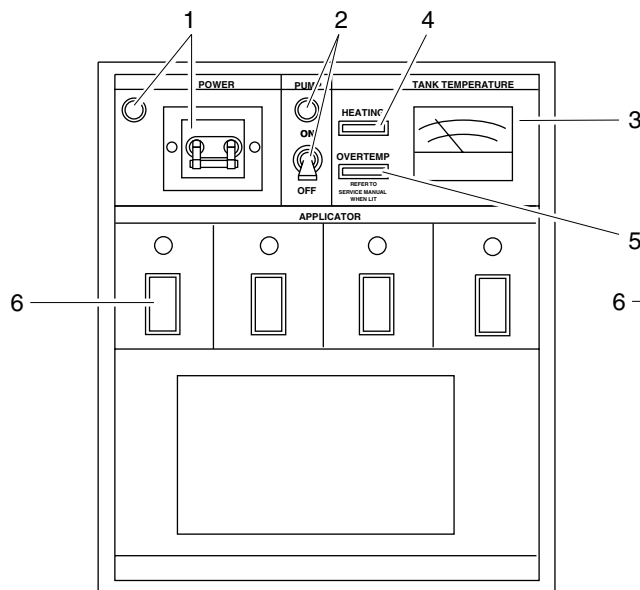
[6] Head Activate/Deactivate Test (HAT) Switch (user-added option only)

The head activate/deactivate test switch (HAT) controls the valving signals to the automatic heads. The HAT switch is located on the melt unit's front panel, and can be identified by the three positions on the switch body: Off to disable the head control circuit; TEST allows the heads to be test fired independently; and RUN enables the head control circuit and allows head valving signals from timers, drivers, limit switches, or photoeyes to actuate the heads.

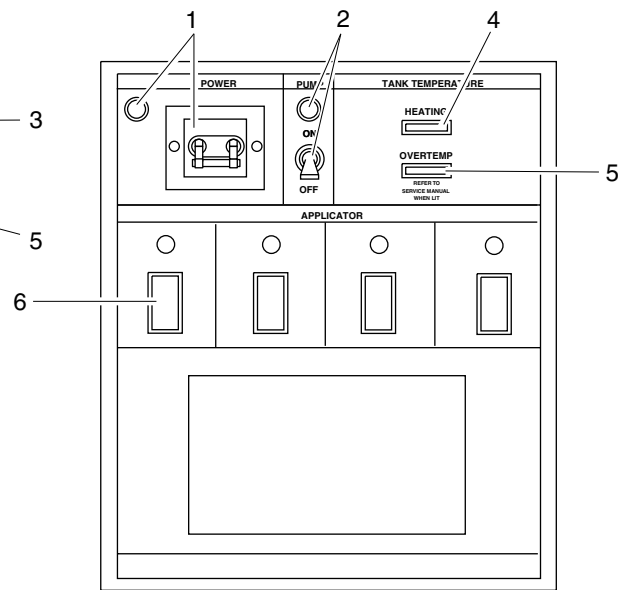
KB30, KB50 and KB100 melt units can have a maximum of three HAT switches to control up to three independent valving head signals. The HAT switches can be connected in a variety of combinations since each melt unit can support up to six automatic heads.



WARNING: During system warm-up and when adjusting system hoses or valving heads, each HAT switch must be in the Off (center) position to prevent accidental head firing.



Bimetallic Temperature Control



Solid-State Temperature Control

2000334

5.2 Startup



WARNING: Fire, explosion, personal injury, property and equipment damage can result if the materials used in or around any hot melt supply equipment, do not meet the following requirements.

1. Minimum flash point of the material to be 50 °F (28 °C) above user's operating temperature.
2. Liquid and vapor to be non-toxic and non-flammable at operating temperature of the hot melt equipment.
3. The mixing of materials (cleanout and adhesives, or different brands of adhesives) do not react violently to produce the following:
 - a. Heat or flames (exothermic reaction).
 - b. A toxic gas as a by-product of the reaction.
 - c. Crosslinking, or the disabling of the adhesive's ability to melt at its designed temperature.
4. Material must not corrode or otherwise weaken hot melt equipment.
5. Always read the manufacturer's recommended use of the material.
6. Become familiar with controls by reading section 5.1: Controls and Indicators.
7. Install the KB Series melt unit as specified in section 4.
8. Fill tank with hot melt material, 1-1/2 inches from the top.
9. Turn the melt unit On and allow 30 minutes warm-up time.
10. Set hose and tank temperatures to desired settings. Lower settings will increase the material's pot life.

NOTE: Certain product assembly materials will degrade over time due to oxidation. It is best not to put more material in the tank than are used in one day. Set the tank temperature as low as feasible for each specific application. To prevent stalling of the motor, adjust the flow control valve so the pump is partially bypassed.

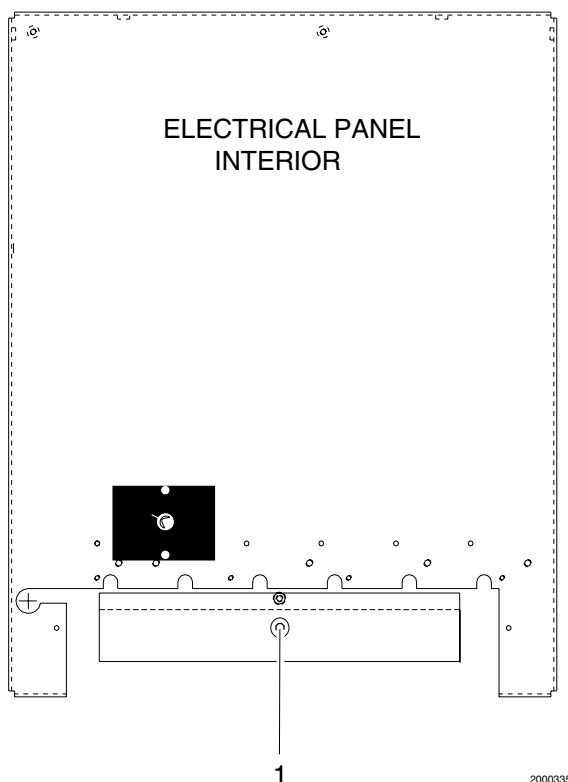
5.3 Adjustments

5.3.1 Temperature Adjustments - Bimetallic

NOTE: Refer to temperature controller manual for solid-state temperature controllers.

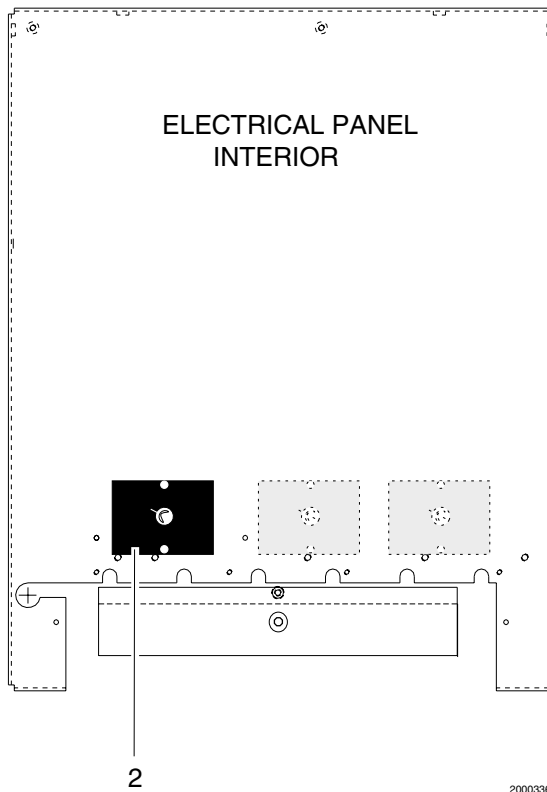
Tank Temperature Controller [1]

To prevent degradation of the hot melt material, the melt tank temperature should be set to the minimum temperature specified by the hot melt manufacturer. Melt tank temperature is controlled by a 30 amp (KB30) or 40 amp (KB50/100), 230 VAC, solid state relay on the electrical panel. The relay is in turn controlled by the melt tank temperature controller. To raise melt tank temperature, turn the melt tank temperature controller's adjustment shaft clockwise. To lower temperature, turn the adjustment shaft counterclockwise. Use the tank temperature meter to verify temperature. The tank temperature can also be verified by inserting a pyrometer into the tank calibration hole. Allow melt tank temperature to stabilize at least 30 minutes before making further adjustments. Refer to section 3.3, performance specifications, for temperature range of the melt tank.



Hose Temperature Controller [2]

To raise the supply hose temperature, turn adjustment shaft clockwise. To lower hose temperature, turn adjustment shaft counterclockwise. Temperature graduations on hose controllers reflect the approximate hose temperature. For precise readings, measure the inside hose temperature with a pyrometer and bead probe. The supply hose temperature should be set to the minimum temperature required for application to ensure maximum hose life and prevent degradation of the material in the supply hose.

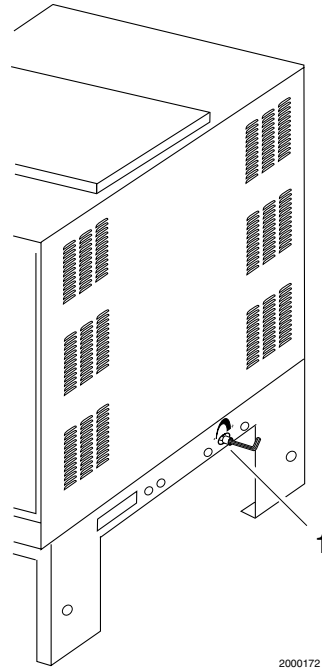


5.3.2 Flow Control Valve

The flow control valve [1] is an adjustable pressure-regulating device mounted to the pump underneath the melt unit chassis. It is adjusted from the lower right side of the melt unit, using the 1/4-inch hex key supplied with the unit.

Adjust for the following conditions:

1. Maximum flow - low viscosity materials: from the full clockwise setting, adjust 1/2 to one turn back counterclockwise. This will prevent pressure surges when system is valved open.
2. Maximum flow - high viscosity materials: adjust so pump will start and run at normal speed when switched on with the system valved shut.
3. Adjusting for lower flow rates: adjust for desired flow rate when system is valved open.



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CAUTION: For maximum performance and motor life, do not allow pump motor to stall. Prolonged stall conditions will cause motor to go into thermal overload.

6 Maintenance

6.1 Preventive Maintenance

Procedure	Daily	Monthly	As Required*
Check for foreign material in tank.	X		
Wipe off excess adhesive from cover.	X		
Purge tank and hoses.		X	X
Clean tank screen.			X
Clean/replace pump filter.			X
Clean applicator nozzle.			X
Check for leaks.	X		

* Extra maintenance required for continuous duty machines.

6.2 General Maintenance

6.2.1 Warning and Caution Notes

KB Series melt units require monthly temperature checks per section 6.2.3. Should char buildup occur, or if the hot melt formulation is changed, the system should be purged with a flushing agent such as Astro Packaging "Strip-N-Clean". Before attempting any maintenance procedure, read the warning and caution notes that follow.



WARNING: Hot melt materials can cause severe burns resulting in disfigurement or blindness. Take the following precautions before beginning any maintenance:



- Wear eye protection goggles, gloves, and protective clothing.
- Switch pump motor On/Off Switch to the Off position. Make sure the head is positioned over some type of disposal receptacle. Depressurize the supply hoses and valving heads.
- Always disconnect the supply hose electrical connector before hose fittings are disconnected.



CAUTION: To prevent damage to components (hose fittings, etc.), the system, specifically the part being serviced, should be heated to approximately 250 °F prior to dismantling, assembly, or adjustment. Failure to do this will result in stripping of threads and ruining both parts and tools. To avoid arcing of electrical contacts and possible failure of components, do not connect hose or head electrical connectors when the power switch is ON.

6.2.2 Heating of Parts

Heating parts may be accomplished by:

- Applying power to the melt unit.
- Using a hand held hot air gun.

6.2.3 Monthly Inspection Procedure

Hose Inspection

1. Verify that the hose is being properly supported so it is not over-stressed during use. Minimum bend radius is 8 inches when hot.
2. Check temperatures and adjust as explained in section 5.3.

NOTE: On multihose systems, a temperature imbalance between hoses can be quickly found by feeling the outside insulation of each hose.

Supply hose Temperature Check

A supply hose temperature check should only be done if there is reasonable doubt that the supply hose is not heating properly. To do a supply hose temperature check, it is necessary to probe one end of the supply hose. The supply hose must remain electrically connected to the melt unit. This means extreme caution and protection should be used because the supply hose is physically hot. Removing the applicator head from the supply hose or removing the supply hose from the melt unit are two methods for doing a supply hose temperature check. The procedure for removing the applicator head from the supply hose is described below. The method for removing the supply hose from the unit is described in the Heated Supply Hose manual.

1. Switch Off the pump motor switch.
2. Depressurize the system by activating the head until glue stops flowing.

-
3. Disconnect the applicator head's electrical connector from the matching supply hose connector. Loosen #6 JIC fitting on the applicator head enough to allow molten glue to leak past the fitting. Once the glue stops flowing and all pressure is relieved, remove the supply hose from the head. Securely position the output end of the supply hose over a disposal receptacle so that it will not fall and pull the supply hose away. Do not point the end of supply hose towards face or any other part of the body.
 4. When the supply hose has reached operating temperature, insert a pyrometer bead probe approximately 2 ft. into output end of the supply hose. If the supply hose temperature is verified to be in error, it should be adjusted to the desired operating temperature as instructed in section 5.3.1. After adjusting the temperature, allow the supply hose temperature to stabilize before checking temperature and removing the bead probe.
 5. Switch Off the system power switch and reconnect the applicator head to the supply hose.

Tank Temperature Check

1. Verify the system is not operating in overtemperature mode. Refer to section 5.1.5, Overtemperature Indicator Light.
2. Check the tank temperature meter and adjust tank temperature as explained per section 5.3.

Tank Screen Cleaning

1. Open tank lid and lift out tank screen with wire hook.
2. Remove any debris and replace.

NOTE: In high viscosity applications, the tank filter assembly should be removed. This filter is used to prevent damage to the pump in standard applications. (Refer to the melt unit parts list and assembly drawing in section 9.)

Pump Block Filter Cleaning

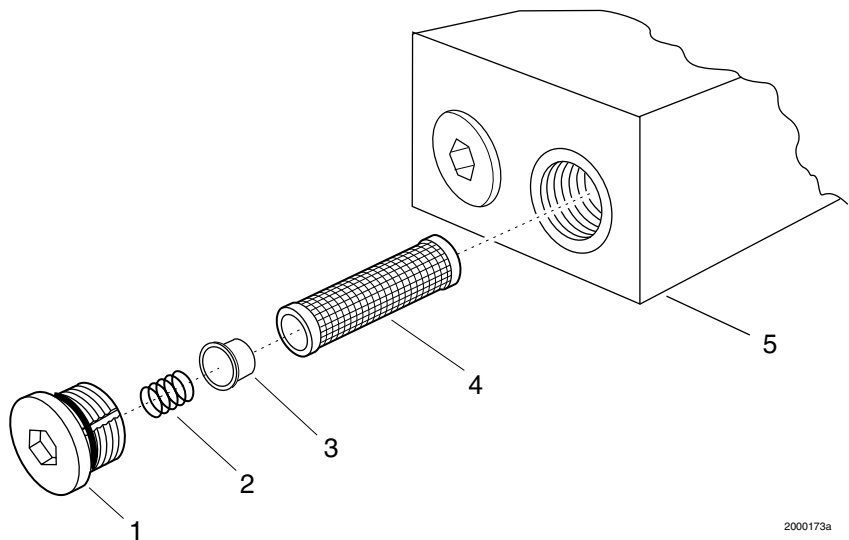
NOTE: This procedure need not be done if flow rates are adequate and no char is present in system.

1. Switch Off the pump motor switch.
2. Depressurize the system by activating the head until glue stops flowing.
3. Using 9/16 hex wrench, remove plug [1] from the end of the pump block [5] at the back of the unit.



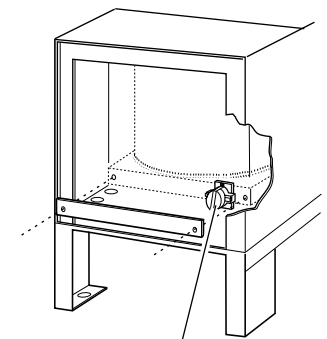
CAUTION: Hot glue will leak out as the fitting is removed.

4. Using needle nose pliers, remove the spring [2], thimble [3] and filter element [4].
5. Temporarily replace plug to prevent hot melt drainage.
6. Clean filter element or replace as required.
7. Reinstall spring, thimble and filter element as removed.
8. Reinstall plug.

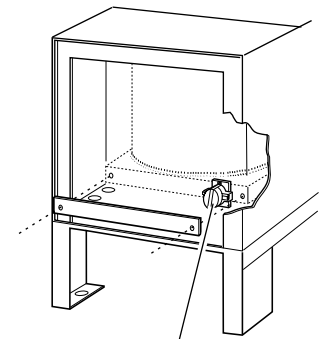


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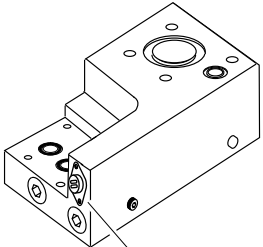
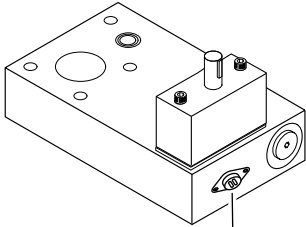
7 Troubleshooting

Problem	Solutions
<p>Tank fails to heat</p>  <p>OVERTEMPERATURE THERMOSTAT 2000285</p>	<ol style="list-style-type: none"> 1. Main Breaker: Turn the system power switch to the On position. If switch light fails to illuminate, the switch may need replacement. 2. Power Cord: Inspect the power-in connections for proper fit and check for faulty wires. Also, inspect the connection of the power wires at the main power supply source. 3. Incoming Voltage: Determine exact voltage of the melt unit. Insufficient voltage can be the cause of these problems. Voltage drops are common. Use a voltmeter to determine whether sufficient voltage is supplied to the melt unit. Also, the voltage of each melt unit component must be compatible to the melt unit or serious damage to the system will occur. (Refer to section 4.4, Electrical Circuits & Wiring). 4. Refer to the electrical schematic and check the actual wire connections to ensure that the melt unit is wired properly. If problem still exists, check the status of specific components with a voltmeter (system powered), or with an ohmmeter (system unpowered, wire disconnected). 5. Tank Controller: Adjust the tank temperature controller according to section 5.3 of this manual. Inadequate tank temperature can affect the performance of your hot melt system. If the tank has reached an overtemperature condition, try turning the controller down. A failure of the solid state relay (closed position) can cause the tank to reach over temperature. Check the relay's continuity – failure of the relay is rare. If problem persists, replace the faulty component (controller or relay). On units with Standby, make sure Standby switch is disengaged and in the Run position. 6. Overtemperature Switch: The Overtemperature (O.T.) switch is a safety device designed to prevent the melt tank from reaching a "run-away" temperature condition. Once the melt tank reaches an over-temperature condition, the O.T. switch controls the tank's temperature. Check the melt tank's temperature when the O.T. indicator is lit. If melt tank temperature is too high, turn the tank temperature controller down (counterclockwise per section 5.3). If the O.T. light is On at an acceptable or low tank temperature, the O.T. switch is either faulty or rated at a low temperature. The O.T. switch must be replaced in either case. (Refer to section 9 for switch kits.)

Problem	Solutions
Tank fails to heat (Continued)	7. Refer to solutions #1 through #6. If problem still exists, replace the tank heaters. Refer to section 9 for part and kit numbers. On melt units with Standby, make sure Standby switch is disengaged and in the Run position.
Tank heats slowly	<ol style="list-style-type: none"> 1. Determine exact voltage of the melt unit. Insufficient voltage can be the cause of these problems. Voltage drops are common. Use a voltmeter to determine whether sufficient voltage is supplied to the melt unit. Also, the voltage of each melt unit component must be compatible to the melt unit or serious damage to the system will occur. (Refer to section 4.4, Electrical Circuits & Wiring). 2. Adjust the tank temperature controller according to section 5.3 of this manual. Inadequate tank temperature can affect the performance of your hot melt system. If the tank has reached an overtemperature condition, try turning the controller down. A failure of the solid state relay (closed position) can cause the tank to reach over temperature. Check the relay's continuity – failure of the relay is rare. If problem persists, replace the faulty component (controller or relay). On units with Standby, make sure Standby switch is disengaged and in the Run position. 3. Refer to Solutions #1 through #6. If problem still exists, replace the tank heaters. On melt units with Standby, make sure Standby switch is disengaged and in the Run position.

Problem	Solutions
<p>Tank overtemp condition</p>  <p>OVERTEMPERATURE THERMOSTAT 2000285</p>	<ol style="list-style-type: none"> 1. Adjust the tank temperature controller according to section 5.3 of this manual. Inadequate tank temperature can affect the performance of your hot melt system. If the tank has reached an overtemperature condition, try turning the controller down. A failure of the solid state relay (closed position) can cause the tank to reach over temperature. Check the relay's continuity – failure of the relay is rare. If problem persists, replace the faulty component (controller or relay). On units with Standby, make sure Standby switch is disengaged and in the Run position. 2. The Overtemperature (O.T.) switch is a safety device designed to prevent the melt tank from reaching a "run-away" temperature condition. Once the melt tank reaches an over temperature condition, the O.T. switch controls the tank's temperature. Check the melt tank's temperature when the O.T. indicator is lit. If melt tank temperature is too high, turn the tank temperature controller down (counterclockwise per section 5.3). If the O.T. light is On at an acceptable or low tank temperature, the O.T. switch is either faulty or rated at a low temperature. The O.T. switch must be replaced in either case. (Refer to section 9 for switch kits.)
<p>Applicator and supply hose heat slowly</p>	<ol style="list-style-type: none"> 1. Determine exact voltage of the melt unit. Insufficient voltage can be the cause of these problems. Voltage drops are common. Use a voltmeter to determine whether sufficient voltage is supplied to the melt unit. Also, the voltage of each melt unit component must be compatible to the melt unit or serious damage to the system will occur. (Refer to section 4.4, Electrical Circuits & Wiring). 2. Adjust the supply hose temperature controller according to section 5.3 in this manual. Inadequate supply hose heat can affect the performance of your hot melt system. If problem persists, see Hose Controller Replacement, section 8.2, and section 9 for Hose temperature controller kits. 3. Determine if applicator is heating by using a surface temperature probe or a temperature-sensing device. Do not touch applicator by hand to determine temperature. Refer to the appropriate applicator service manual. Determine exact voltage of the head heaters and the supply hose (found on the identification tags).

Problem	Solutions
Applicator and supply hose fail to heat	<ol style="list-style-type: none"> <li data-bbox="743 201 1463 359">1. Main Breaker: Turn the system power switch to the On position. If switch light fails to illuminate, the switch may need replacement. System power switch and supply hose power switch must both be in the On position for hoses and heads to heat. <li data-bbox="743 369 1463 527">2. Power Cord: Inspect the power-in connections for proper fit and check for faulty wires. Also, inspect the connection of the power wires at the main power supply source. Inspect the 9-pin hose electrical connector for proper fit. <li data-bbox="743 537 1463 789">3. Incoming Voltage: Determine exact voltage of the melt unit. Insufficient voltage can be the cause of these problems. Voltage drops are common. Use a voltmeter to determine whether sufficient voltage is supplied to the melt unit. Also, the voltage of each melt unit component must be compatible to the melt unit or serious damage to the system will occur. (Refer to section 4.4, Electrical Circuits & Wiring). <li data-bbox="743 800 1463 989">4. Adjust the supply hose temperature controller according to section 5.3 in this manual. Inadequate supply hose heat can affect the performance of your hot melt system. If problem persists, see Hose Controller Replacement, section 8.2, and section 9 for Hose temperature controller kits <li data-bbox="743 999 1463 1157">5. Check the incoming hose power connector (9-pin, underneath the melt unit) to see if it is properly installed. Connector wire pins may be misaligned or loose. If the melt unit has a supply hose power switch, make sure it is the On position. <li data-bbox="743 1167 1463 1356">6. If problem remains, disconnect incoming hose power connector and check hose heater resistance with an ohmmeter. If the hose heater has failed, it is necessary to replace the hose. (Refer to the appropriate supply hose service manual and section 8.1 Supply Hose Replacement). <li data-bbox="743 1367 1463 1514">7. Determine if applicator is heating by using a surface temperature probe or a temperature-sensing device. Do not touch applicator by hand to determine temperature. Refer to the appropriate applicator service manual.

Problem	Solutions
<p>Applicator and supply hose overheat</p>	<ol style="list-style-type: none"> 1. Determine exact voltage of the melt unit. Insufficient voltage can be the cause of these problems. Voltage drops are common. Use a voltmeter to determine whether sufficient voltage is supplied to the melt unit. Also, the voltage of each melt unit component must be compatible to the melt unit or serious damage to the system will occur. (Refer to section 4.4, Electrical Circuits & Wiring). 2. Adjust the supply hose temperature controller according to section 5.3 in this manual. Inadequate supply hose heat can affect the performance of your hot melt system. If problem persists, see Hose Controller Replacement, section 8.2, and section 9 for Hose temperature controller kits. 3. Determine if applicator is heating by using a surface temperature probe or a temperature-sensing device. Do not touch applicator by hand to determine temperature. Refer to the appropriate applicator service manual.
<p>Pump inoperative</p>  <p>PUMP WARM-UP THERMOSTAT (V2)</p>  <p>PUMP WARM-UP THERMOSTAT (V3 and V4)</p> <p>2000280</p>	<ol style="list-style-type: none"> 1. Main Breaker: Turn the system power switch to the On position. If switch light fails to illuminate, the switch may need replacement. System power switch and pump motor switch must both be in the On position for pump to operate. 2. Determine exact voltage of the melt unit. Insufficient voltage can be the cause of these problems. Voltage drops are common. Use a voltmeter to determine whether sufficient voltage is supplied to the melt unit. Also, the voltage of each melt unit component must be compatible to the melt unit or serious damage to the system will occur. (Refer to section 4.4, Electrical Circuits & Wiring). Determine exact voltage and frequency of the pump motor marked on the motor data label located on the motor. 3. Switch the pump motor On/OFF switch to the On position. Allow sufficient time for the melt tank to reach operating temperature. This will cause the pump warm-up switch to close, thus completing the pump motor circuit. If warm-up switch is faulty or rated at a higher temperature, it must be replaced. Refer to section 9. 4. Determine which pump is mounted in your melt unit. (Refer to the melt unit I.D. plate). The pumping performance, listed in section 3 of this manual, depends upon certain pump and pump motor combinations. (Refer to section 9 for pump kit information.) Look into the melt tank for any foreign material plugging the inlet pump port. Pump gears can freeze up; in which case the pump may need replacement or repair.

Problem	Solutions
Pump inoperative (Continued)	<ol style="list-style-type: none"> 5. The pump motor is normally the last item to check when troubleshooting. All motors have internal thermal protection. Switch Off pump motor switch and allow the motor to cool for approximately 20 minutes. Turn pump switch back On. If the motor still fails to operate, continue troubleshooting. Determine which pump motor is mounted in your melt unit. (Refer to the motor I.D. plate.) Look into the melt tank for any foreign material plugging the inlet pump port. Pump gears can freeze up; in which case the pump may need replacement or repair. 6. Remove foreign material from pump and tank. Purge system with "Strip-N-Clean" if necessary.
Pump motor stalls	<ol style="list-style-type: none"> 1. Adjust the tank temperature controller according to section 5.3 of this manual. Inadequate tank temperature can affect the performance of your hot melt system. If the tank has reached an overtemperature condition, try turning the controller down. A failure of the solid state relay (closed position) can cause the tank to reach over temperature. Check the relay's continuity – failure of the relay is rare. If problem persists, replace the faulty component (controller or relay). On units with Standby, make sure Standby switch is disengaged and in the Run position. 2. Adjusting the flow control valve (F.C.V.) correctly will produce the desired pumping performance of your melt unit. (Refer to section 5.3.2 of this manual.) If the F.C.V. is inoperable, replace or repair it. (Refer to section 9 for pump kit information.) 3. The pump motor is normally the last item to check when troubleshooting. All motors have internal thermal protection. Switch Off pump motor switch and allow the motor to cool for approximately 20 minutes. Turn pump switch back On. If the motor still fails to operate, continue troubleshooting. Determine which pump motor is mounted in your melt unit. (Refer to the motor I.D. plate.) 4. Remove foreign material from pump and tank. Purge system with "Strip-N-Clean" if necessary. 5. Increase melt tank and supply hose temperatures per section 5.3.1. If this does not improve performance, consult the adhesive vendor concerning your applications. 6. Adhesive formulations tend to be a factor in each previously listed problems. Refer to Startup instructions (section 5.2), for cautionary notes. System should be purged if formulation is incorrect.

Problem	Solutions
Pump motor overload	<ol style="list-style-type: none"> 1. Adjust the tank temperature controller according to section 5.3 of this manual. Inadequate tank temperature can affect the performance of your hot melt system. If the tank has reached an overtemperature condition, try turning the controller down. A failure of the solid state relay (closed position) can cause the tank to reach over temperature. Check the relay's continuity – failure of the relay is rare. If problem persists, replace the faulty component (controller or relay). On units with Standby, make sure Standby switch is disengaged and in the Run position. 2. Switch the pump motor On/Off switch to the On position. Allow sufficient time for the melt tank to reach operating temperature. This will cause the pump warm-up switch to close, thus completing the pump motor circuit. When the pump motor experiences overload conditions, it will shut off, or the pump motor breaker will trip, or both. This is usually caused by insufficient pump warm-up time. If this problem persists, the pump switch/breaker may need replacement. 3. Adjusting the flow control valve (F.C.V.) correctly will produce the desired pumping performance of your melt unit. (Refer to section 5.3.2 of this manual.) If the F.C.V. is inoperable, replace or repair it as specified in section 8.4. (Refer to section 9 for pump kit information.) 4. The pump motor is normally the last item to check when troubleshooting. All motors have internal thermal protection. Switch Off pump motor switch and allow the motor to cool for approximately 20 minutes. Turn pump switch back On. If the motor still fails to operate, continue troubleshooting. Determine which pump motor is mounted in your melt unit. (Refer to the motor I.D. plate.) 5. Remove foreign material from pump and tank. Purge system with "Strip-N-Clean" if necessary. 6. Increase melt tank and supply hose Temperatures per section 5.3.1. If this does not improve performance, consult the adhesive vendor concerning your applications. 7. Adhesive formulations tend to be a factor in each previously listed problems. Refer to Startup Instructions (section 5.2), for cautionary notes. System should be purged if formulation is incorrect.

Problem	Solutions
Pump motor breaker throws	<ol style="list-style-type: none"> 1. Incoming Voltage: Determine exact voltage of the melt unit. Insufficient voltage can be the cause of these problems. Voltage drops are common. Use a voltmeter to determine whether sufficient voltage is supplied to the melt unit. Also, the voltage of each melt unit component must be compatible to the melt unit or serious damage to the system will occur. (Refer to section 4.4, Electrical Circuits & Wiring). 2. Refer to the electrical schematic and check the actual wire connections to ensure that the melt unit is wired properly. If problem still exists, check the status of specific components with a voltmeter (system powered), or with an ohmmeter (system unpowered, wire disconnected). 3. Switch the pump motor On/Off switch to the On position. Allow sufficient time for the melt tank to reach operating temperature. This will cause the pump warm-up switch to close, thus completing the pump motor circuit. Replace pump breaker. 4. Adjusting the flow control valve (F.C.V.) correctly will produce the desired pumping performance of your melt unit. (Refer to section 5.3.2 of this manual.) If the F.C.V. is inoperable, replace or repair it as specified in section 8.4. (Refer to section 9 for pump kit information.) 5. The pump motor is normally the last item to check when troubleshooting. All motors have internal thermal protection. Switch Off pump motor switch and allow the motor to cool for approximately 20 minutes. Turn pump switch back On. If the motor still fails to operate, continue troubleshooting. Determine which pump motor is mounted in your melt unit. (Refer to the motor I.D. plate.)
Pump leaks	<ol style="list-style-type: none"> 1. Determine which pump is mounted in your melt unit. (Refer to the melt unit I.D. plate). The pumping performance, listed in section 3 of this manual, depends upon certain pump and pump motor combinations. (Refer to section 8.4, Pump Flow Control Replacement and section 9 for pump kit information.) Tighten F.C.V. and pump mounting screws. If pump continues to leak, replace the o-ring, copper shim, and tank gasket.

Problem	Solutions
Adhesive output too low	<ol style="list-style-type: none"> 1. Adjusting the flow control valve (F.C.V.) correctly will produce the desired pumping performance of your melt unit. (Refer to section 5.3.2 of this manual.) If the F.C.V. is inoperable, replace or repair it as specified in section 8.4. (Refer to section 9 for pump kit information.) 2. Adjust the supply hose temperature controller according to section 5.3 in this manual. Inadequate supply hose heat can affect the performance of your hot melt system. If problem persists, see Hose Controller Replacement, section 8.2, and section 9 for Hose temperature controller kits. 3. Adjust the tank temperature controller according to section 5.3 of this manual. Inadequate tank temperature can affect the performance of your hot melt system. If the tank has reached an overtemperature condition, try turning the controller down. A failure of the solid state relay (closed position) can cause the tank to reach over temperature. Check the relay's continuity – failure of the relay is rare. If problem persists, replace the faulty component (controller or relay). On units with Standby, make sure Standby switch is disengaged and in the Run position. 4. Remove foreign material from pump and tank. Purge system with "Strip-N-Clean" if necessary. 5. Determine which pump is mounted in your melt unit. (Refer to the melt unit I.D. plate). The pumping performance, listed in section 3 of this manual, depends upon certain pump and pump motor combinations. (Refer to section 9 for pump kit information.) Consult factory for the proper pump combination needed for specific application. 6. The pump motor is normally the last item to check when troubleshooting. All motors have internal thermal protection. Switch Off pump motor switch and allow the motor to cool for approximately 20 minutes. Turn pump switch back On. If the motor still fails to operate, continue troubleshooting. Determine which pump motor is mounted in your melt unit. (Refer to the motor I.D. plate.) Consult factory for the properly rated pump motor for your specific application. 7. Increase melt tank and supply hose Temperatures per section 5.3.1. If this does not improve performance, consult the adhesive vendor concerning your applications.

Problem	Solutions
Adhesive output too low (Continued)	8. Adhesive formulations tend to be a factor in each previously listed problems. Refer to Startup Instructions (section 5.2), for cautionary notes. System should be purged if formulation is incorrect. Clean applicator nozzle or change to larger nozzle. (Refer to section 9, Maintenance Tools.)
Adhesive output too high	<ol style="list-style-type: none"> 1. Adjusting the flow control valve (F.C.V.) correctly will produce the desired pumping performance of your melt unit. (Refer to section 5.3.2 of this manual.) If the F.C.V. is inoperable, replace or repair it as specified in section 8.4. (Refer to section 9 for pump kit information.) 2. Adjust the supply hose temperature controller according to section 5.3 in this manual. Inadequate supply hose heat can affect the performance of your hot melt system. If problem persists, see Hose Controller Replacement, section 8.2, and section 9 for hose temperature controller kits. 3. Adjust the tank temperature controller according to section 5.3 of this manual. Inadequate tank temperature can affect the performance of your hot melt system. If the tank has reached an overtemperature condition, try turning the controller down. A failure of the solid state relay (closed position) can cause the tank to reach over temperature. Check the relay's continuity – failure of the relay is rare. If problem persists, replace the faulty component (controller or relay). On units with Standby, make sure Standby switch is disengaged and in the Run position. 4. The pump motor is normally the last item to check when troubleshooting. All motors have internal thermal protection. Switch Off pump motor switch and allow the motor to cool for approximately 20 minutes. Turn pump switch back On. If the motor still fails to operate, continue troubleshooting. Determine which pump motor is mounted in your melt unit. (Refer to the motor I.D. plate.) Consult factory for the properly rated pump motor for your specific application.

Problem	Solutions
Excessive smoking from tank and gun	<ol style="list-style-type: none"> <li data-bbox="743 201 1472 583">1. Adjust the tank temperature controller according to section 5.3 of this manual. Inadequate tank temperature can affect the performance of your hot melt system. If the tank has reached an overtemperature condition, try turning the controller down. A failure of the solid state relay (closed position) can cause the tank to reach over temperature. Check the relay's continuity – failure of the relay is rare. If problem persists, replace the faulty component (controller or relay). On units with Standby, make sure Standby switch is disengaged and in the Run position. <li data-bbox="743 590 1472 783">2. Adjust the supply hose temperature controller according to section 5.3 in this manual. Inadequate supply hose heat can affect the performance of your hot melt system. If problem persists, see Hose Controller Replacement, section 8.2, and section 9 for hose temperature controller kits. <li data-bbox="743 789 1472 909">3. Adhesive formulations tend to be a factor in each previously listed problems. Refer to Startup Instructions (section 5.2), for cautionary notes. System should be purged if formulation is incorrect.

Problem	Solutions
Valving heads won't fire	<ol style="list-style-type: none"> 1. Main Breaker: Turn the system power switch to the On position. If switch light fails to illuminate, the switch may need replacement. System power switch should be in the On position and the HAT switch must be in the Run position. 2. Incoming Voltage: Determine exact voltage of the melt unit. Insufficient voltage can be the cause of these problems. Voltage drops are common. Use a voltmeter to determine whether sufficient voltage is supplied to the melt unit. Also, the voltage of each melt unit component must be compatible to the melt unit or serious damage to the system will occur. (Refer to section 4.4, Electrical Circuits & Wiring). Determine coil voltage of the applicator head (I.D. plate) and check incoming control voltage to terminal blocks. (Refer to electrical schematic that came with the melt unit). 3. Refer to the electrical schematic that came with the melt unit and check the actual wire connections to ensure that the melt unit is wired properly. If problem still exists, check the status of specific components with a voltmeter (system powered), or with an ohmmeter (system unpowered, wire disconnected). 4. Adjust the supply hose temperature controller according to section 5.3 in this manual. Inadequate supply hose heat can affect the performance of your hot melt system. If problem persists, see Hose Controller Replacement, section 8.2, and section 9 for hose temperature controller kits. 5. Determine if applicator is heating by using a surface temperature probe or a temperature-sensing device. Do not touch applicator by hand to determine temperature. Refer to the appropriate applicator service manual. 6. Clean applicator nozzle. (Refer to section 9, Maintenance Tools.) 7. Make sure the HAT switch is in Run position. This allows valving signals to reach the applicator heads. To check if applicator heads are functioning properly, place the HAT switch in the Test position. This will test fire the heads only if an external device such as a Timer or a DC Driver is not used. If no external device is used and the head does not test fire in the Test position, it is possible the head coil could have failed. If an external device such as timer or a DC Driver is being used the problem may lie with the external device. Refer to the external device's service manual.

8 Repair and Replacement

Refer to Parts List in section 9 for all replacement parts listed in this section. Repair and replacement procedures not found here are on the instruction sheets that come with spares kits listed in section 9.

8.1 Supply Hose Replacement

1. Switch Off system power switch and allow the hot melt material in the melt tank to cool.



CAUTION: Liquified hot melt adhesive can cause difficulty in maintaining your unit. Be certain that all material in the tank has cooled before continuing with maintenance.

2. Switch On system power switch and supply hose power switch for 5 minutes to allow fittings to warm up. Switch Off system power switch after the 5 minutes has elapsed.
3. Disconnect power and tilt unit backward.
4. Disconnect the supply hose electrical connector.
5. Remove screws from hose mounting block.
6. Loosen hose JIC fitting and remove hose from 90 degree fitting on the flow control valve.
7. Disconnect the applicator head's electrical connector and remove the old supply hose from the #6 JIC fitting on the applicator head.
8. Install new supply hose on the melt unit as specified in section 4.3, Component Installation.
9. Install applicator head on the new supply hose. Switch On system power switch and supply hose power switch to determine if the applicator head and supply hose are operating properly.

8.2 Hose Controller Replacement - Bimetallic

1. Follow section 8.1, steps 1-7, for hose replacement.
2. Disconnect melt unit power and open front control panel.
3. Disconnect controller wires.
4. Remove the two 6/32 screws fastening the controller to the electrical mounting panel.
5. Attach hose to the JIC fitting as specified in section 4.3.
6. Reconnect melt unit power, switch hose power switch On, and adjust controller as indicated in section 5.3.1.

8.3 Pump Motor Replacement

1. Switch Off system power switch and disconnect melt unit power.
2. Remove back panel (and housing for 170 rpm motor on KB30 melt units).
3. Disconnect motor electrical connector and remove fast-on connectors from capacitor.
4. Remove motor with mounting bracket as a whole assembly from the melt unit.
5. Remove motor shaft coupling. Remove motor from mounting bracket.
6. Reassemble melt unit with new motor.
7. Turn motor On (system warmed up) and observe motor and drive shaft coupling for misalignment. Loosen and retighten motor mounting bracket to realign as necessary.

NOTE: Motor must turn the pump shaft counterclockwise (looking down on the pump shaft).

8. Replace housing (for 170 rpm motor on KB30 melt units) and back panel.

8.4 V4 Pump (.450 and .675), Flow Control & Drive Shaft Replacement

8.4.1 V4 Pump Replacement - .450 and .675

1. If it is possible and can be done safely, pump out all the hot melt material in the melt unit, then switch off the system power switch and allow the melt unit to cool down completely. Otherwise switch off system power switch and allow adhesive in tank to completely solidify.
2. Switch on system power switch for 10 minutes to allow pump and flow control valve to warm up.
3. Switch off system power switch, disconnect melt unit power, remove the back panel, and tilt unit forward. Remove the supply hose according to the procedure in section 8.1 (steps 1 through 7).
4. Refer to section 9 for sequential parts breakdown.
5. Remove the four socket screws attaching the flow control valve and pump to the pump block.
6. Pull pump out and remove its o-ring and pump block gasket. Provide new replacement seals. (Refer to section 9 for appropriate pump kits.) Also, remove flow control connection piece from the pump block, if applicable.
7. Place o-rings in the pump groove and on the flow control connection piece after lubricating with high-temperature silicon-based grease.

NOTE: On units pumping heavy sealants, it is necessary to "slick" both sides of the pump block gasket using some of the sealant itself to prevent air from being drawn into the pump.

8. Install flow control and pump as an assembly with screws, o-ring and gasket in place. Align pump shaft tab with drive shaft slot. Take care not to cut o-ring on the connection tube during assembly process.
9. Before tightening screws, check pump o-ring alignment by manually pressing the flow control valve against the pump.



CAUTION: Be sure pump o-ring is properly aligned in pump groove when replacing pump and/or flow control valve. A pinched or misaligned o-ring may result in pump leakage.

10. Replace the supply hose according to the procedure described in section 4.3.
11. To properly align the pump with the motor, turn flow control adjustment screw all the way out counterclockwise and loosen pump mounting screws one half turn each.
12. Reconnect melt unit power, turn system power switch on, and allow unit to warm-up.

-
13. Turn pump motor switch on and carefully tighten pump mounting screws while pump is turning. This will align the pump with the drive shaft assembly.
 14. Observe motor and drive shaft coupling. Check for misalignment. If necessary, loosen and retighten motor mounting bracket to realign. Replace rear panel.

8.4.2 V4 and V3 Drive Shaft Assembly Replacement

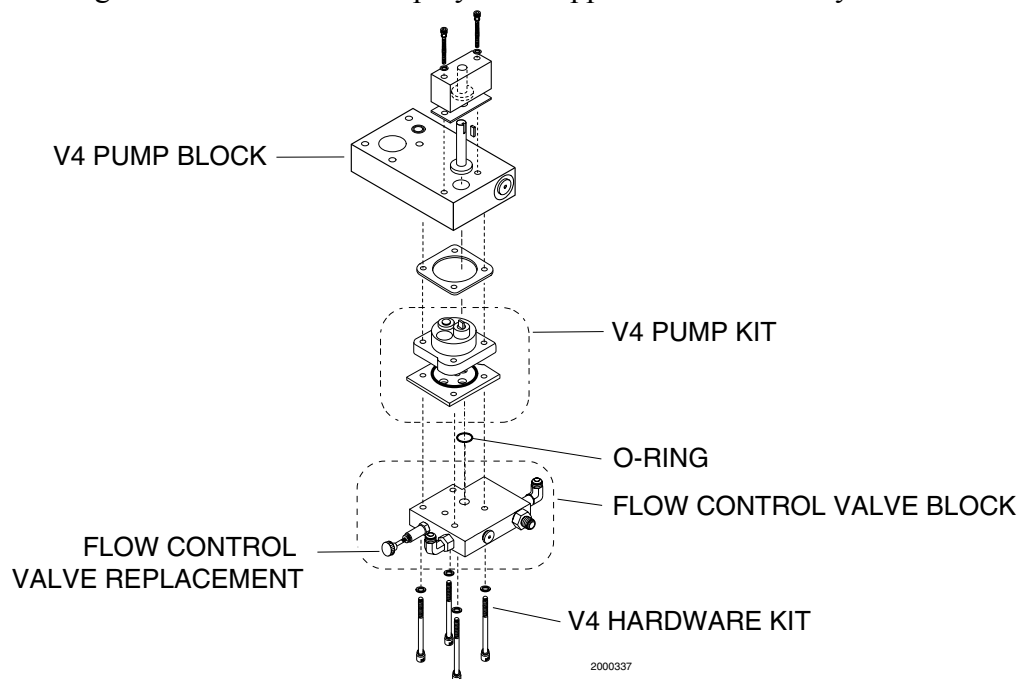
1. If it is possible and can be safely done, pump out all of the hot melt material in the melt unit, then switch off the system power switch and allow the melt unit to completely "cool down". Otherwise switch off system power switch and allow hot melt material in tank to completely solidify.
2. Switch on system power switch for about 10 minutes to allow melt unit to warm up enough to permit removal of drive shaft assembly.
3. Remove back panel and remove motor, mounting assembly, and motor coupling.
4. Remove the two socket head cap screws that hold the drive shaft block to the pump block. Pull the drive shaft assembly off the pump block.
5. Dismantle drive shaft assembly by pressing the motor side of the shaft through the block. Support the block so the bal seal is free to come out with the drive shaft.
6. Clean all parts and inspect for wear, replace as required.
7. Replace the bal seal in the block. Apply small amount of high temperature lubricant, (Astro Packaging p.n. 30120-1) to the drive shaft in the area of the bal seal.
8. Reassemble drive shaft assembly in reverse order.
9. Refit drive shaft assembly to pump block, replace gasket if required. Do not fully tighten mounting screws.
10. Switch on system power switch and allow tank heaters to warm up enough to permit turning of the pump drive shaft.
11. Turn pump shaft and allow the drive shaft assembly to self-align with the pump. Tighten drive shaft assembly mounting screws and again rotate shaft by hand, to see that it turns freely. Realign if required.
12. Replace motor, mount assembly, and coupling. Do not fully tighten mounting bolts.
13. Switch on pump motor switch and check misalignment of motor drive shaft. Adjust motor mount position as required and tighten bolts. Check again for misalignment and readjust motor mount position if required.

9 Parts List

9.1 Pumps, V4 and Accessories

Item	Description (Quantity)	Part Number
	Pump kit, V4-450 with Flow Control Valve & block	79211-16
	Pump kit, V4-675 with Flow Control Valve & block	79211-17
	Pump Kit, V4-450, all melt units	79290-1
	Pump Kit, V4-675, all melt units	79290-2
	Pump Block O Ring Kit, V4 30/50/100	79070-2
	O-Ring, .070w x .614" I.D., high temp, V4	10493-015
	O-Ring, .070w x 1.864" I.D., high temp, V4	10493-145
	Flow Control Valve Block, V4-450	79025-61
	Flow Control Valve Block, V4-675	79025-62
	V4 Flow Control Valve Replacement	79287-07
	Connection Piece, V4-450, 30/50/100	70488-1
	Connection Piece, V4-675, 30/50/100	70488-2
	O-ring, Connection Piece to tank	10415
	O-ring, Connection Piece to block	10505-06
	Hardware Kit, V4-450 and V4-675	79042-1
	Pump insulation kit, V3 or V4 30 lb melt units	79176-2
	Pump insulation kit, V3 or V4 50/100 lb melt units	79176-1
	Pump Filter Kit, 50 Mesh	79064
	Drain/Purge Valve Kit (KB 30/50/100 only)	79057-1
	Kit, Knob Assembly FCV, V2/V3/V4	79287-04

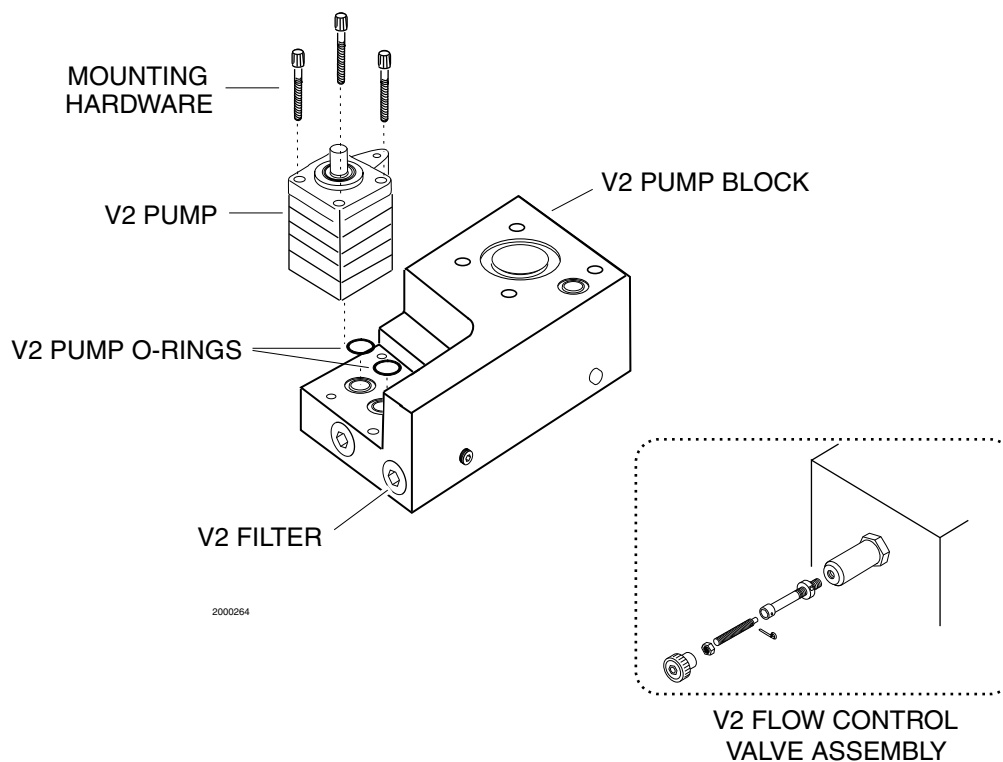
NOTE: Teflon o-rings are recommended for polyamide applications. Contact your local distributor for assistance.



9.2 Pumps, V2 and Accessories

Item	Description (Quantity)	Part Number
	V2-545 Pump Block & FCV complete.	79211-07
	V2-545 Pump (replacement for existing V2)	79179-3
	Flow Control Valve Kit, V2	79082-7
	Drain Valve Kit	79057-1
	Tank Screen	73289
	Kit, Knob Assembly FCV, V2/V3 Retrofit	79287-02
	Pump Block O-Ring Kit, V2	79070-1
	Kit, V2 Pump Teflon o-ring, 30/50/100 lb MU	79290-04
	Pump Insulation Kit, V2, 30 lb melt units	79176-4
	Pump Insulation Kit, V2, 50/100 lb melt units	79176-3
	Pump Filter Kit, 50 Mesh	79064

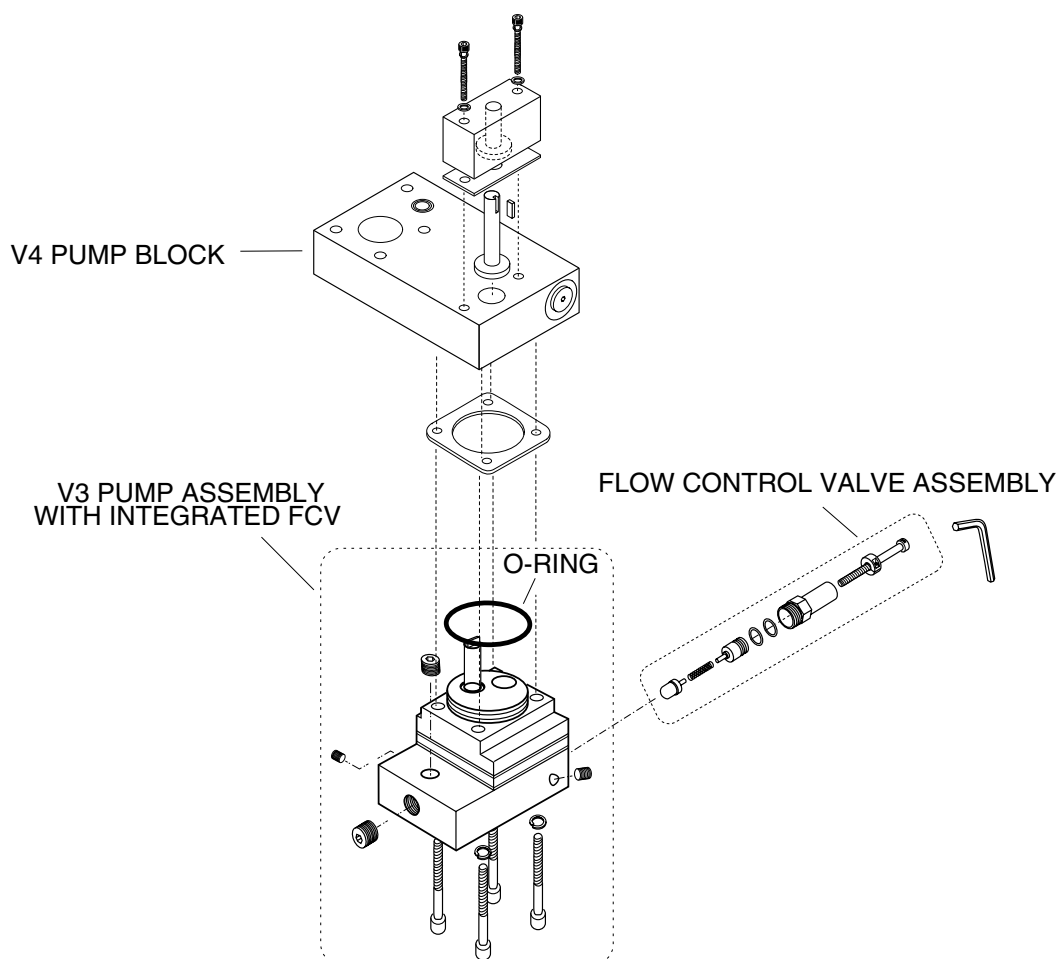
NOTE: Teflon o-rings are recommended for polyamide. Contact your local distributor for assistance.



9.3 Pumps, V3 and Accessories

Item	Description (Quantity)	Part Number
	V3-450 Pump Assembly with integrated FCV	79204-6
	V3-675 Pump Assembly with integrated FCV	79204-8
	V3-450 Pump, complete (filter block & FCV)	79211-10
	V3-675 Pump, complete (filter block & FCV)	79211-11
	V3 Flow Control Repair Kit	79082-8
	Kit, Knob Assembly FCV, V2/V3 Retrofit	79287-02
	Kit, V3 Pump Teflon o-ring, 30/50/100 lb MU	79290-06
	Pump insulation kit, V3 or V4 30 lb melt units	79176-2
	Pump insulation kit, V3 or V4 50/100 lb melt units	79176-1
	Pump Filter Kit, 50 Mesh	79064
	Drain/Purge Valve Kit (KB 30/50/100 only)	79057-1
	Kit, Mounting, FC1, KB50/100	79385-02
	Kit, Mounting, FC1, KB30	79385-04

NOTE: Teflon o-rings are recommended for polyamide. Contact your local distributor for assistance.



2000338

9.4 Standard Melt Unit Switches

Item	Description (Quantity)	Part Number
	Kit, Tank Overtemp Thermostat 150°F	79127-150
	Kit, Tank Overtemp Thermostat 200°F	79127-200
	Kit, Tank Overtemp Thermostat 300°F	79127-300
	Kit, Tank Overtemp Thermostat 400°F	79127-400
	Kit, Tank Overtemp Thermostat 450°F	79127-450
	Pump Warm-up Thermostat 100°F	79068-100
	Pump Warm-up Thermostat 200°F	79068-200
	Pump Warm-up Thermostat 225°F	79068-225
	Pump Warm-up Thermostat 250°F	79068-265
	Pump Warm-up Thermostat 300°F	79068-300
	Pump Warm-up Thermostat 350°F	79068-350
	Circuit Breaker, 230 V, 30 Amp (KB30)	12015-12
	Circuit Breaker 230 VAC, 40 Amp (TXXX with Aux) (KB50/100)	12015-19
	Handle Kit, 2 Pole Breaker	12015-12A
	Kit, Circuit Breaker 40 Amp(KB50/100)	79003-01
	Control Relay 200/230 VAC, 40 amp	12040-92
	Relay, SSR 25A, AC	12040-8
	Relay, SSR 25A, DC	12041-6

9.5 HAT Switches

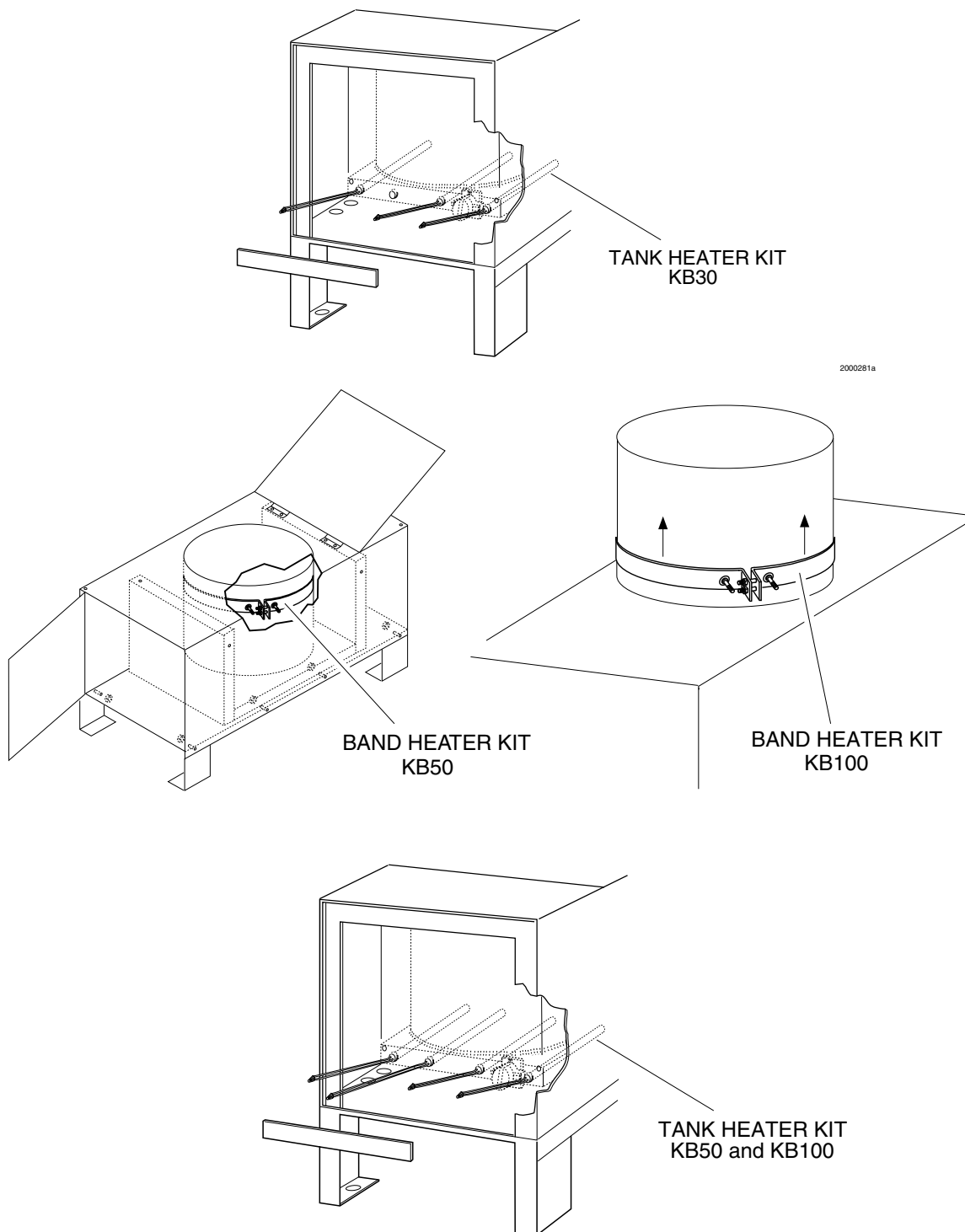
Item	Description (Quantity)	Part Number
	Kit, HAT Switch, AC, Head Group #1	79128-101
	Kit, HAT Switch, AC, Head Group #2	79128-102
	Kit, HAT Switch, DC, Head Group #1	79128-103
	Kit, HAT Switch, DC, Head Group #2	79128-104

HAT Switches – end-user to install

Definition: A HAT Switch is a 3-position switch that allows a Head Group to be in Run for normal automatic operation, Off so no firing signal goes to the head coil(s), or in Test for manual testing firing of valve. Astro Packaging Pattern Generators and Head Drivers include a switch for test firing the valves. HAT Switches should not be installed on melt units with Head Drivers.

9.6 Tank Heaters

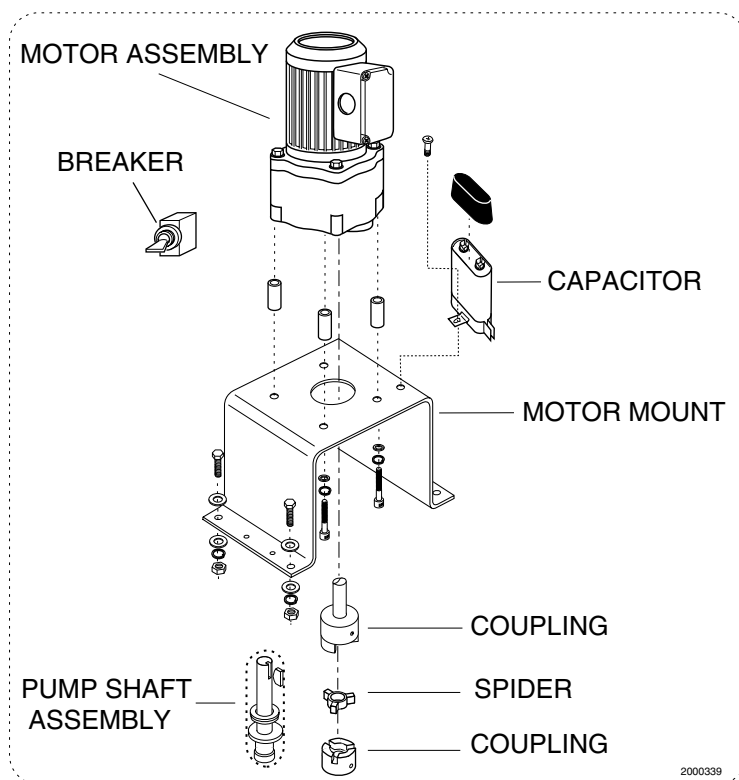
Item	Description (Quantity)	Part Number
	Tank Heater Kit, 230 VAC, 1000 Watt (KB30)	79088-30
	Tank Heater Kit, 230 VAC, 1000 Watt (KB50/100)	79088-50
	Tank Heater Kit, 200 VAC, 1000 Watt (KB50/100)	79088-51
	Band Heater Kit for tank, 200 or 230 VAC (KB50/100)	79088-100



9.7 Standard Fan-Cooled Motors

Item	Description (Quantity)	Part Number
	Motor Assembly, 86/72 RPM 200/230 VAC, 60/50 Hz	73012-42
	Motor Group, 1/6 hp, 86 RPM 200-230 VAC, 60 Hz	73278-42
	Motor Group, 1/6 hp, 72 RPM 200-220 VAC, 50 Hz	73278-45
	Motor Group, 1/6 hp, 72 RPM, 220-240 VAC, 50 Hz	73278-46
	Kit, Motor and Capacitor, 1/3 hp, 170 RPM, 200/230 VAC, 60Hz	79414-01
	Motor Group, 1/3 hp, 170 RPM, 200/230 VAC, 60 Hz	73278-98
	Motor Assembly, 1/3 hp, 140 RPM, 200/230 VAC, 50 Hz	73012-81
	Motor Group, 1/3 hp, 140 RPM, 200/230 VAC, 50 Hz	73278-97

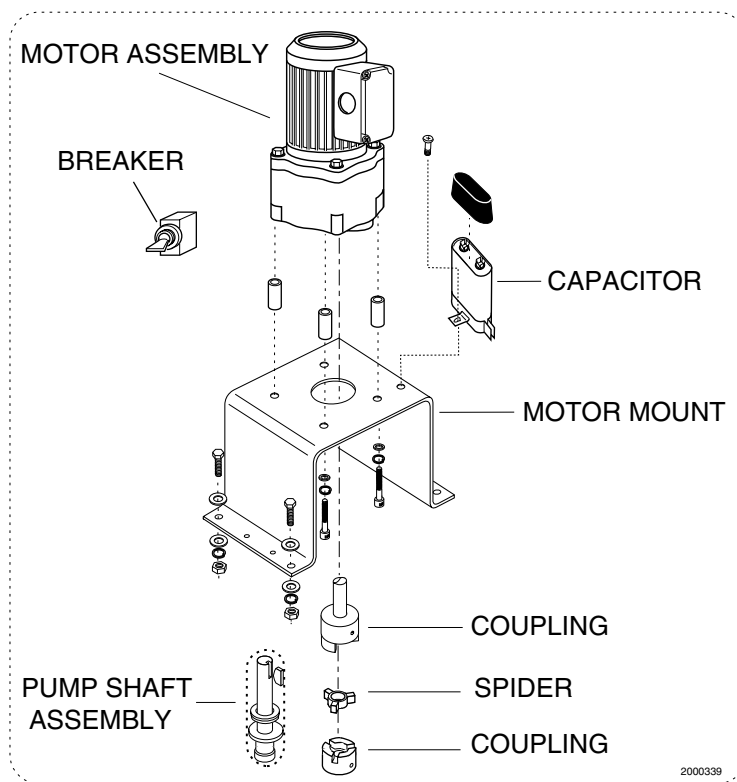
NOTE: Motor group includes motor assembly, capacitor, pump "On/Off" breaker and motor mount. Motor assembly is the basic motor, intended for replacement of existing motor only.



9.8 Standard Fan-Cooled Motor Support

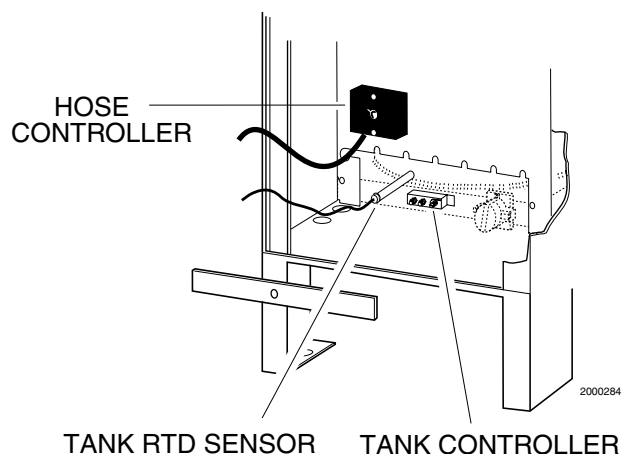
Item	Description (Quantity)	Part Number
	Wire nuts (medium low temperature)	12277-2
	Spider, bronze, 2 jaw	18425-7B
	Coupling, 9/16" bore, 1/8" keyway, 2 jaw	18425-6G
	Coupling, 5/8" bore, 3/16" keyway, 2 jaw	18425-6H
	Coupling, 3/4" bore, 3/16" keyway, 2 jaw	18425-6J
	Spider, bronze, 3 jaw	18425-7C
	Coupling, 5/8" bore, 3/16" keyway, 3 jaw	18425-3
	Coupling, 9/16" bore, 1/8" keyway, 3 jaw	18425-4G
	Coupling, 3/4" bore, 1/16" keyway, 3 jaw	18425-4J
	Coupling, 19 mm bore, 6 mm keyway, 3 jaw	18425-4K
	Breaker, motor, 2.9 Amp, 115 VAC, Fast Trip *	12055A-29
	Breaker, motor, 1.5 Amp, 230V Fast Trip *	12055A-15
	Breaker, motor, 2.0 Amp *	12055-2
	Breaker, motor, 2.5 Amp-520 Trip *	12055B-25
	Pump Shaft Assembly	73726
	Kit, Gearbox Repair, 86/72 RPM Motor	79295-02

* Common motor breakers. Contact factory for system compatibility.



9.9 Temperature Controllers

Item	Description (Quantity)	Part Number
	Kit, Tank Controller, adjustable, 100-450°F	79006
	Kit, Hose Controller 100-200°F	79125-1
	Kit, Hose Controller 200-300°F	79125-2
	Kit, Hose Controller 300-400°F	79125-3
	Kit, Hose Controller 350-450°F	79125-4
	RTD Sensor replacement, for tank	79117-04
	T500 Replacement Module (includes on-board power supply, relays for two hoses and heads and all auxiliaries)	79253-01
	Kit, T750 replacement module, without power supply	79256-01
	T1000 without power supply, up to 6 hose units, no Auxiliaries	79196-25
	T1000 without power supply, up to 6 hose units, A1 Auxiliary Package (Three basic auxiliary relays are installed. Must have PB 12 with up to 12 relays and power supply.)	79198-25
	T1000 without power supply, up to 5 hose/heads, A3 Auxiliaries (Must have PB12 and power supply. A3 Auxiliaries include 3 standard A1 plus remote Run to Standby switch and Run/Standby Indicator. Switch and Indicator light provided by customer RPM Monitor not available.)	79198-22



9.10 Tank Level Sensors

Item	Description (Quantity)	Part Number
Proximity Type		
	KB30 one sensor 6.6" from tank bottom, (includes a modified tank) (Must be factory installed in melt tank at time of manufacture)	79233-07
	KB50 one sensor 9" from tank bottom, (includes modified tank)	79233-03
	KB50 one sensor 7.5" from tank bottom, (includes modified tank)	79233-05
	KB50 two sensor 3" and 7" from tank bottom, (includes modified tank)	79233-06
	KB100 one sensor 18" from tank bottom, (includes modified tank)	79233-04
	KB100 two sensor 6" and 17" from tank bottom, (includes modified tank)	79233-02
Spares		
	Kit, Replacement, 1 Sensor (does not include amplifier or tank)	79263-01
	Kit, Replacement, 2 Sensors (does not include amplifier or tank)	79263-02

9.11 Weather-Resistant Housing

Item	Description (Quantity)	Part Number
	Kit, Weather Resistant Housing (30 lb)	79161-1
	Kit, Weather Resistant Housing (50 and 100 lb)	79161

9.12 Chassis Fans

Item	Description (Quantity)	Part Number
	Fan Kit, chassis, 230 VAC	79170-2

9.13 Reverse Hose Mounting Kits

Item	Description (Quantity)	Part Number
	Reverse Hose Mounting Kit, 1 hose, 30-100 lb unit, RTD sensor	79188-01
	Reverse Hose Mounting Kit, 2 hose, 30-100 lb unit, RTD sensor	79188-02
	Reverse Hose Mounting Kit, 1 hose, 30-100 lb unit, capillary sensor	79188-11
	Reverse Hose Mounting Kit, 2 hose, 30-100 lb unit, capillary sensor	79188-12

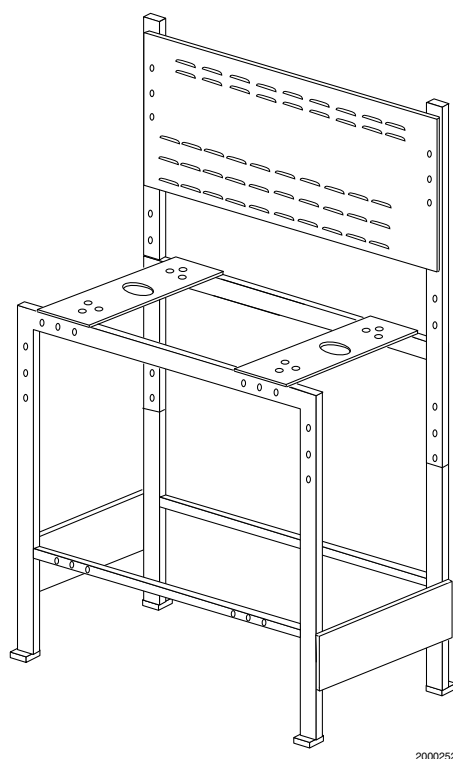
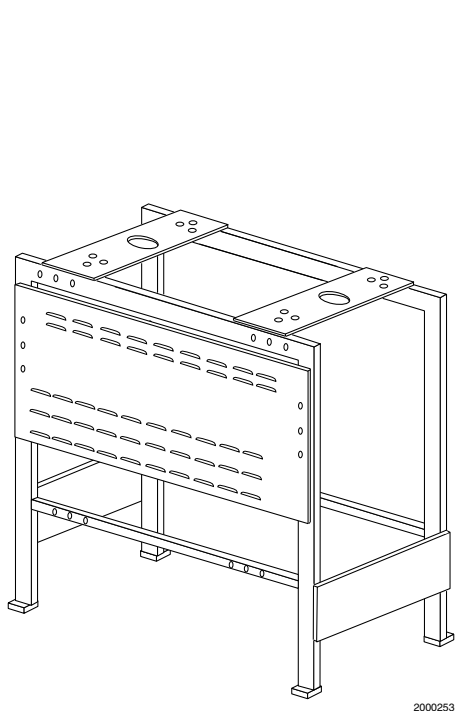
NOTE: 1. One to two feet longer hose may be needed with reverse mounted hoses.
2. Space does not permit more than two rear exit hoses on 50 and 100 lb melt units.

9.14 Adhesive Pressure Gauges

Item	Description (Quantity)	Part Number
	Pressure Gauge, Standard, 1500 PSI/10,000 kPa	79227-02
	Pressure Gauge, Low Pressure, 300 PSI/2000 kPa	79227-01

9.15 Melt Unit Stand/Bracket

CONTACT LOCAL DISTRIBUTOR FOR AVAILABLE STAND CONFIGURATIONS.



9.16 Miscellaneous

Item	Description (Quantity)	Part Number
	Kit, Gun Hanger	79023
	Kit, Front Mount Hose Electrical Connector, 9 pin, Standard hose	79311-04
	Kit, Front Mount Hose Electrical Connector, 16 pin, Standard hose	79311-03
	Kit, Front Mount Hose Electrical Connector, 9 pin, Washdown hose	79311-02
	Kit, Front Mount Hose Electrical Connector, 16 pin, Washdown hose	79311-01
	Kit, Remote Power on relay	79183-2
	Kit, Lexan Door, T500/T750/T1000	79253-03
	Kit, Audible Alarm, 60 db, Standard, 230 VAC	79189-02
	Kit, Audible Alarm, 100 db, Optional, 230 VAC	79217-01
	Kit, Audible Alarm, 100 db, Optional, 115 VAC	79217-02
	Kit, Hose Mole (for in-place cleaning of hoses)	79281-01
	Kit, Adapter, FC1 with V3 Pump, KB30 *	79305-04
	Timer, Adapter Kit, 90-280 VAC in 48-280 VAC out **	79060
	Timer, Adapter Kit, 3-32 VDC in 48-280 VAC out **	79060-24

* KB30 melt unit using FC1 Flow Control must be equipped with this kit.

** Timer Adapter is used with customer timer to switch 120-240 VAC output. If output is 120 VAC (.5 Amp), 79060 will switch up to 20 Amps. If timer output is 3-32 VDC, use 79060-24 to switch up to 10 Amps.

	Band Heater, installed on 100 lb Melt Unit (additional, 1 comes on ea. KB100)	79088-101
	Band Heater, installed on 50 lb Melt Unit (additional)	79088-102
	Kit, Stak Lite System, 115 VAC ***	79285-02
	Kit, Light bulb, spare, Stak Lite System, 115VAC ***	79310-01

*** For Stak Lite System to function, your melt unit must be equipped with a T1000 with A3 auxilliary package, a proximity type low level sensor, remote power on relay kit, and additional pole relays for PLC interface. Consult factory for assistance.

Appendix A: Component Resistance Tables

Table 1. Hose/Applicator Fuse Size Specification

Voltage	Amps
100	4
115	4
200	4
230	4

Table 2. RTD Sensor Resistance

Temperature	Ohms
0 °C (32 °F)	100
38 °C (100 °F)	115
66 °C (150 °F)	126
93 °C (200 °F)	136
121 °C (250 °F)	147
149 °C (300 °F)	158
177 °C (350 °F)	168
204 °C (400 °F)	178

NOTE: The tank and the hose have one RTD sensor each.

Table 3. Heater Resistance

Tank

Voltage	Ohms
230	53

Motor

Voltage	Ohms
230	11 - 13

Table 4. E100XT Automatic Applicator Resistance

Voltage	Ohms
115	50 - 65
230	216 - 264

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Warranty

- A. Astro Packaging warrants its products, when operated and maintained in accordance with Astro Packaging recommended procedures, are free of defects in material and workmanship during the periods indicated below commencing with the date the product is placed in service.

Product

Warranty Period

- | | |
|---|--|
| 1. Tank heater (including entire tank when heater is cast into tank) | 5 years or 10,000 hours of use, whichever occurs first |
| 2. Melt unit (unless specified below); pattern controller; head driver | 1 year or 2000 hours of use, whichever occurs first |
| 3. Stationary hose; automatic electric head; JR Series Hot Melt System or melt unit; standard pail unloader; standard accessory purchased with a system | 1 year or 2,000 hours of use, whichever occurs first |
| 4. Manual hose; handgun; Mini Squirt III; any butyl system; any PUR system (including hose, gun or head used with PUR); any spare or replacement component; pneumatic head; industrial heated hose; T100 Temperature Controller; nozzle; nozzle bar | 6 months or 1,000 hours of use, whichever occurs first |
| 5. Rebuilt equipment | 90 days or 500 hours of use, whichever occurs first |
- B. The sole liability of Astro Packaging and exclusive remedy extended to any Astro Packaging customer shall be limited to replacing or repairing, at the option of Astro Packaging, any product returned under the terms of this warranty. Labor and related expenses incurred to install replacement or repaired parts are not covered by this warranty.
- C. Astro Packaging is not responsible for repair or replacement of any product that has been subject to abuse, misuse, alteration, accident, or negligent use, nor for repairs made by an unauthorized person or with parts other than those provided by Astro Packaging.
- D. Astro Packaging assumes no responsibility for the performance of adhesives or other materials used with its products.
- E. The warranty for a product repaired or replaced under this warranty shall continue in effect for the remainder of the original warranty period, or for ninety (90) days following the day of shipment by Astro Packaging of the repaired or replaced product, whichever period is longer.
- F. No warranty is made with respect to custom products or products developed, designed and manufactured to customer specifications, except as specifically stated in writing by Astro Packaging.
- G. Astro Packaging is responsible only for payment of shipping charges for delivery of a repaired or replaced product, via the least expensive means of transport, to customer or an authorized Sales and service Center in the Continental United States only. Payment for shipment to Astro Packaging or an authorized Sales and service Center for evaluation, repair or replacement is the responsibility of the customer.
- H. For service under this warranty, contact the Factory Authorized Representative from which the product was purchased.

THIS WARRANTY IS IN LIEU OF ANY OTHER WARRANTY EXPRESSED OR IMPLIED, INCLUDING THE WARRANTY OF MERCHANTABILITY AND FITNESS FOR THE PARTICULAR PURPOSE.

Complete Reverse Side and Retain for Your Records

Equipment Record

Record the information below on all equipment received and retain for your records.

(Systems, melt units, hoses, guns, heads, pattern controllers, drivers, etc)

Products were purchased from: _____

Astro Packaging Authorized Sales and Service Center

Product Model/Description _____ Serial No. _____

Product Part Number _____ Order No. _____

Date Received _____ Start-Up Date _____ Invoice No. _____

Product Model/Description _____ Serial No. _____

Product Part Number _____ Order No. _____

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